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United States
Department of
Agriculture

Forest Service
Southern Region

Final Environmental Impact Statement

VEGETATION MANAGEMENT in the Coastal Plain/Piedmont

COMMENT LETTERS AND RESPONSES VOLUME III







Management Bulletin R8-MB-23

January 1989

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COMMENT LETTERS AND RESPONSES

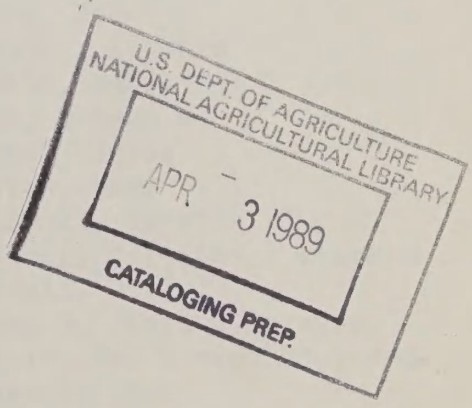
This volume contains complete copies of comment letters received about the Draft EIS, and Forest Service responses to them. Comments were received from 348 persons, groups, and agencies. Volume I, chapter VI, discusses these comments and the public involvement process.

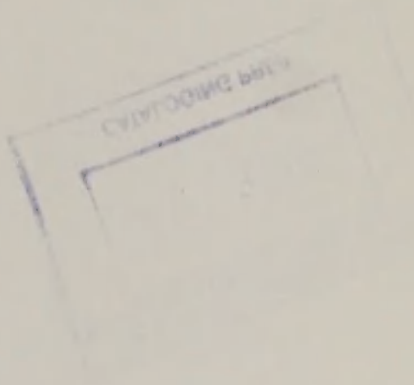
Each letter is numbered in the order in which it was received. This number is in the top right corner of the letter. In the letter, substantive comments are numbered in the left margin. Forest Service responses are located next to the letter (on the right half of the page) and are numbered to correspond to specific comments.

Since many comments are similar, responses often refer to another letter where that comment has already been addressed. References to pages of text specify the Draft EIS or the Final EIS. References to sections do not, since these are the same in both versions.

Letters 79 and 80 combine 190 duplicate post cards that contain identical comments. They are answered only once.

Many comments were very incisive and prompted changes in the Final EIS. Some led us to modify alternative G by reducing total herbicide use and broadcast (ground and aerial) application of herbicides. Some led us to strengthen or expand parts of the analysis in chapter IV. Others led to editorial improvements, as in the description of alternatives early in chapter II. Such changes are explicitly mentioned in our responses to the applicable comments.





LIST OF DRAFT EIS COMMENTERS

This section is an alphabetical list of people and organizations who commented on the draft EIS.

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1

Duke University
DURHAM
NORTH CAROLINA
27706

SCHOOL OF FORESTRY AND ENVIRONMENTAL STUDIES

TELEPHONE [illegible] 684 2421

24 May 1988

Dear USFS:
Re: Draft EIS Vegetation Mgt in Coastal Plain/Piedmont

Enclosed you will find a report published in Science magazine of a study supported by the Southeast Station. It concerns effects of prescribed fires on soil, water quality (stream and ground water), and atmospheric emissions of nutrients. The conclusions are clearly stated in
1 the abstract. I suggest you include it in your references.

Best regards,
Daniel D Richter
Assoc. Professor of Forest Soils

Response to Comments in Letter No. 1

From: Daniel Richter

Comment No.	Response
1	This report was used and is referenced in appendix B.

2

Westvaco

May 24, 1988

USDA Forest Service
1720 Peachtree Road,N.W.
Atlanta, GA 30367

Gentlemen:

1 I received the "Draft Environmental Impact Statement:" Vegetation Management in the Coastal Plan/Piedmont Appendices, Volume II, April 1988. This document seems very thorough and useful re applied pesticides in natural resource management.

As a forest wildlife biologist, I appreciate the opportunity to review and to maintain this document as reference.

Very truly yours,

Fred Kinard

Fred W. Kinard, Jr.
Wildlife Biologist

Timberlands Division
Box 1950
Summerville, SC 29484
Telephone 803 871 5000

Response to Comments in Letter No. 2

From: Fred W. Kinard, Jr.

Comment No.	Response
1	Copies of the Final EIS (all volumes) are being sent.

3

Carl M. Booth, Jr., D.M.D.
1751 Dauphin Street
Mobile, Alabama 36604
(205) 471-2387

I just Rec'd:

Draft Environ Impact Statement

Vegetation Management in the

Coastal Plain/Piedmont Vol I

Thank you so very much &

1 keep me on mailing list

especially for information of interest

to tree farmers - we manage

family timberlands in South Ala.

Thanks.

Carl Booth

Response to Comments in Letter No. 3

From: Carl M. Booth

Comment No.	Response
1	Copies of the Final EIS (all volumes) are being sent.

4

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Vegetation control is very important in the management of Southern pines. In order to control certain undesirable plants mechanical, chemical and prescribed burning are needed.

Why? If handled in a responsible manner, the Forest Service can use these tools with little harm to the environment.

Comments on Alternatives: In order for management to do a good job of raising timber + wildlife I feel that alternative G is

1

Why? the best option.

As always care should be used in mechanical, chemical and prescribed burning methods of controlling vegetation.

Other:

Why?

Levie Vidrine

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Levie F. Vidrine
Name: First MI Last

Rt. 1 Box 107-B
Street

Dodson La. 71422
City State Zip Code

Response to Comments in Letter No. 4

From: Levie Vidrine

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received.

5

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

1 No scientific analysis you analysis seem Reasonable we cover that Certain area's need to have help in Vegetation management

Why? both of younger timber being stunted also our wildlife in Rare, a hard time finding food in these area

Comments on Alternatives:
no comment

Why? the alternatives as seem to work as well as original

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Clifton L. Arinder
Name: First MI Last

1246 Dargan St.
Street

Jackson MS 39204
City State Zip Code

Response to Comments in Letter No. 5

From: Clifton L. Arinder

Comment No.	Response
1	Comments noted.

6

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments. Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Your "scientific analysis" is utterly shallow and short term. It fails to take into account the long term severely negative effects of suggested types of vegetation management, especially with respect to residual effects of herbicides on soil and water organisms. It also utterly fails to take into account the real needs of

1

Why? the rarest and shyest wildlife species such as Black Bear and Eastern Cougar. Incidentally you are obliged under the Endangered Species Act to have a program of vegetation

2

management which encourages the recovery of the Comments on Alternatives: Eastern Cougar and promote the habitat of Black Bear. This requires you to stop vegetation manipulation, to close roads etc, to create the solitude under which these populations of rare animals can recover.

Why? My impression is that your entire program is driven by a desire to promote your bureaucratic empires,

3

to "manage" vegetation to create jobs for "managers"

4

Other: no matter what the cost to the environment. Hence such destructive Godzilla machines as you employed and continue to employ in Texas to destroy wilderness!

Why? The most important thing you have to do is change your attitude, to show a real concern for biologic diversity and stop your selfish bureaucratic empire building that is

degrading the environment. Return to the ethics of Aldo Leopold

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Robert F. Mueller Va Est First!

Name: First MI Last

Route 4, Box 250

Street

Staunton Virginia 24401

City State Zip Code

Response to Comments in Letter No. 6

From: Robert F. Mueller

Comment No.	Response
1	We did assess long term impacts if data showed that such effects were possible. For example, long term effects on soil were analyzed in the Draft EIS for slash burns (pages IV-76-77) and piling and raking (page IV-82). Long term effects of herbicides on soil biota were not shown since our low use rates (Draft EIS, page II-48) do not reduce biotic activity (appendix C, page 10 and Draft EIS, page IV-83). For effects on aquatic biota, see response to comments in Letter No. 70, Comment No. 3.
2	In accordance with the Endangered Species Act, management (including vegetation management) is carried out with the intent of recovery for listed species. Management is in accordance with species recovery plans and with the concurrence of the Fish and Wildlife Service.
3	Only alternative A envisions even minor changes in Forest Service employment levels, and then only in the long term. National forests produce a variety of goods and services, many of which require management. Technical specialists from many fields are hired to fill this need for management and to evaluate effects to the environment, particularly through analyses such as this EIS.
4	Vegetation management with mechanical equipment is not done in wilderness areas. In general forest areas, for activities including site preparation, rights-of-way maintenance, or precommercial thinning, mechanical equipment such as rolling drum choppers are used to cut and chop woody and herbaceous vegetation. Choppers effectively control non-sprouting vegetation. Sprouting vegetation recovers rapidly and minor soil exposure and disturbance occurs. For further discussion of the effects of choppers and other types of mechanical equipment see chapter II, pages II-15 to II-20, of the Draft EIS.

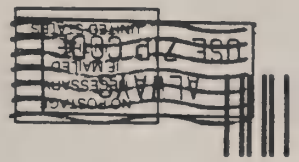
6

DRAFT CP/P
Attention Rm. 362S

USDA FOREST SERVICE
1720 PEACHTREE RD., N.W.
ATLANTA, GA 30367

BUSINESS REPLY MAIL
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POSTAGE WILL BE PAID BY FOREST SERVICE, USDA

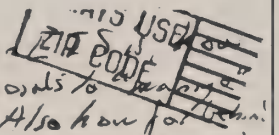






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PENALTY FOR PRIVATE USE $300

USDA FOREST SERVICE
1720 PEACHTREE RD., N.W.
ATLANTA, GA 30367



I can't begin to tell you how stupid you
egotistical and ~~arrog~~ presumptuous in your proposals to
every living thing, to leave nothing to Nature! Also how far
you are in your ecological thinking! How you may list endangered
5 species and fail to consider the long term effects of your shallow
industrial management and manipulation. These beautiful forests
are part of the heritage of future generations of all beings, plant
and animal. They are not to be managed simply for industry
purposes. Non consumptive uses must be considered
paramount!
RFMEF! Only your Alternative A
is acceptable!

(Continuation of Forest Service response)

5 The commenter's preference for alternative A was included in the content analysis of all comments received. Please refer to chapter IV, section E and appendices D and E of the Final EIS for listing and discussion of endangered species.

7

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

1 Analysis seems fair and complete,but care should be stressed even more. Herbicides are final if applied in excesses leaving areas completely barren for long periods and erosion will be the end result.

Why?

Comments on Alternatives:

2 G is the best of the alternatives because the less we disturb the better. Application of herbicides disturbs me because of its effect on hardwoods. I would advise caution.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

James H. Luper
Name: First MI Last

Rt 2 box 13A
Street

Raleigh, Miss. 39153
City State Zip Code

Response to Comments in Letter No. 7

From: James Luper

Comment No.	Response
1	Mitigation measures number 4 and 5 on pages II-48-49 of the Draft EIS that require low application rates, the preference for application methods that affect the minimum amount of vegetation, and cause the minimum site disturbance while meeting project objectives, ensure that erosion and other soil impacts are minimal. Tebuthiuron, however, may cause serious erosion on erodible sites due to its extreme persistence (page IV-83 of the Draft EIS). It will be used only when it meets the criteria established in table II-1 on pages II-32-33 and mitigation measure number 6 on page II-49 of the Draft EIS.
2	The commenter's preference for alternative G was included in the content analysis of all comments received. Application of herbicides can easily be done in a selective manner which favors and/or maintains hardwoods in a stand. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods.

8

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

5/26/88

Why?

Comments on Alternatives: I'm in favor of Alternative D.

1 Why? I see a need for vegetation management, even intensive vegetation management, but feel that these should be some places that are not subjected to chemical controls. Regardless of present research we still do not know the long term effects.

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Richard L. Ramey
Name: First MI Last

P.O. Box 1089
Street

Fitzgerald GEORGIA 31750
City State Zip Code

Response to Comments in Letter No. 8

From: Richard Ramey

Comment No.	Response
1	The commenter's preference for alternative D was included in the content analysis of all comments received. None of the evaluated herbicides appear to pose significant, long-term risk when used properly and with mitigation measures outlined on pages II-48 to II-54 in the Draft EIS. As stated in mitigation measure number 1 on page II-35 of the Draft EIS, vegetation management projects will have site-specific analysis that will examine and evaluate a reasonable range of alternative methods, including the use of methods which do not involve herbicides.

9

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

1 Thorough analysis model and good use of up-to-date cost of treatments.

Why?

Comments on Alternatives:

Agree with selecting "G" as preferal alternative

Why? Because G gives best balance of resources

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

FOREST FARMERS ASSN.
Name: First MI Last
P.O. Box 95385
Street
ATLANTA, GA 30347
City State Zip Code

Response to Comments in Letter No. 9

From: Forest Farmers Association

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter found the cost analysis to be thorough and up to date. The commenter's preference for alternative G was included in the content analysis of all comments received.

10

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1 Comments on Scientific Analysis: Certainly the use of herbicides is bad.

Why? Interference with the natural processes should be minimized.

2 Comments on Alternatives: I oppose the aerial application of herbicides, I oppose alternatives G and H.

Why? Aerial application of herbicides is dangerous to humans and wildlife.

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Read Secord
Name: First MI Last
2921 NE 53rd Street
Street
Lighthouse Pt., Florida 33064
City State Zip Code

Response to Comments in Letter No. 10

From: Read Secord

Comment No.	Response
1	National forests are mandated to produce a variety of goods and services. In order to fulfill this mandate, some manipulation of natural processes is necessary. As the EIS shows, the use of herbicides is the least damaging tool available to us in some circumstances. Used carefully, herbicides, in some circumstances, minimize the interference necessary in forested areas while insuring a full range of outputs.
2	The commenter's opposition to alternatives G and H was included in the content analysis of all comments received. Data in this EIS shows an evaluation of aerial application of 10 herbicides. Done with modern helicopter mounted equipment and only during certain weather conditions (mitigation measure number 15 on page II-51 of the Draft EIS), safety for workers is significantly greater than for other methods of vegetation management for almost all workers, and the risk to the general public is negligible. For wildlife effects, see response to comments in Letter No. 43, Comment No. 7.

11

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1 Comments on Scientific Analysis:

As a Concerned Citizen, I've reviewed the Draft Environmental Impact Statement in Volume I & II. It's a job well done, and a good referenced, regarding our environment.

Why?

Comments on Alternatives:

None

Why?

Other: In the near future, I'll mail you a package of materials that ties in With Vol. I & II.

Why? Thanks for remembering me, and thank one and all, for all the effects that went into the Volumes.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

HENRY J. LACOUR, JR
Name: First MI Last
3 DOTTIE LANE
Street
BOYCE, LA. 71409-9617
City State Zip Code

[illegible] Henry J. LaCour
USAF Retired
3 Dottie Lane
Boyce, LA 71409-9617

Response to Comments in Letter No. 11

From: Henry Lacour, Jr.

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter found the environmental analysis well done and a good reference. Numerous changes have been incorporated as a result of public comments.

June 20, 1988

Mr. ~~Dale~~ McCorquodale
U.S. Department of
Agriculture
Forest Service
Suite 951
1720 Peachtree Road NW
Atlanta, Ga. 30367-9102

RECEIVED
JUN 24 88
VEGETATIVE MGT. UNIT

Dear Mr. McCorquodale,

Your most welcome letter, June 8 1988 - Reply to 1950 (VMT) was received and appreciated.

To help you in your work for a better environment, enclosed 50 items.

Please send, if possible Volume I and II Draft Environmental Impact Statement (DEIS) for Vegetation Management

in the Costal Plain / Piedmont to - if they receive a copy:

Mr. Bohunk Joe
Brotherhood of XECERS
14 Orchard St.
Elmwood Park, N.J.
07407-1521

Editor Elizabeth Coleman
Aquasortes.
Center for Wetland
Resources
Louisiana State Univer-
sity
Baton Rouge, La. 70803-
7507

Dr. Robert A. Muller
Louisiana Office
of State Climatology

Department of Geography and Anthropology
Louisiana State University
Baton Rouge, La. 70803-4105

Dr. N. Comardese
President
Americanism Foundation
48 N. Linwood Ave.
Norwalk, Ohio 44-857

Colonel R. L "Bob" Lawrence
2035 Lynda Lee Lane
P.O. Box 5644
Alexandria, La. 71307-5644

Rapides Parish Library
Main & 11 Washington
Alexandria, La. 71301

I hope what I've
written and enclosed
will add joy to your
day.
With best regards, and
God bless you.

A Patriot
Henry Lacour

12

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

Comments on Alternatives:

Why?

1 Other: Minor - Artwork III-12 of quail inappropriate

Why? Species (Valley or Gambels) is found in the West not the Southeast

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Sanford D. Schemnitz
Name: First MI Last
DEPT Fish & Wildlife - Box 4901 New Mexico State Univ
Street
Las Cruces NM 88003
City State Zip Code

Response to Comments in Letter No. 12

From: Sanford Schemnitz

Comment No.	Response
1	The illustration of quail in the margin of page III-12 of the Draft EIS has been removed.

13

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1 I prefer alternative A, the no action alternative.

It is stated that roadside growth will obstruct vision, making roads hazardous within 3-5 years under this alternative. I would suggest that strict speed limits be enforced and introduced to ensure that people driving on these roads drive in a manner that matches this reduced visibility. Perhaps a speed limit of 10 miles per hour.

2 I cannot see how a lack of vegitation management could cause road surfaces to be damaged. Trees do not suddenly start to grow in the middle of a well traveled road.

3 As for the risk of power outages which could result when vegetation grows in rights of way and contacts transmission wires — this should be a responsibility of the utility company which owns the lines. They should see that vegetation is trimmed at thier expense. The Forest service should not be doing this for them.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Kenneth P. Rollock
Name: First MI Last
P.O. Box 1257
Street
Laconia NH 03247-1257
City State Zip Code

Response to Comments in Letter No. 13

From: Kenneth Rollock

Comment No.	Response
1	The commenter's preference for alternative A was included in the content analysis of all comments received.
2	Dirt road surfaces are subject to colonization by a variety of plants. Where plant roots penetrate the road surface they loosen surface soil and permit more rapid infiltration of water causing weak spots. Also, roots growing under roads from the shoulder can crack the road surface. Failure to control vegetation indirectly causes severe road surface deterioration.
3	Power line right-of-way maintenance, and specifically vegetation management along these corridors, is the responsibility of the power companies. However, wherever a right-of-way crosses a national forest, it is required to be under permit. This EIS will be used to determine which tools will be allowed for vegetation management in those areas.

14

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1 **Comments on Scientific Analysis:** The analysis involved in the Vegetation Management DEIS appears to be very thorough. However, I detected a tone of bias favoring USFS desires and standard practices. Perhaps this is unavoidable.

2 Under "Research Needs" (IV-129), I would like to see the USFS intensify research regarding items 2, 3, 5, 8, 10, 12, 13, 14, and 16.

Why?

3 **Comments on Alternatives:** As a taxpayer and frequent national forest user, I request that the USFS adopt and implement Alternative B as its vegetation management program. My reasons for requesting Alternative B: (1) Lowest total cost at $2.03 million, (2) Minimum use of herbicides, (3) Minimum impact and adverse effects on wildlife, water and soil quality, and visual quality. (4) Minimum risk to workers. I also favor a primitive environment and experience over a rural experience.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

G. Nicholas Hancock
Name: First MI Last
P.O. Box 2821
Street
Asheboro, N.C. 27204
City State Zip Code

Response to Comments in Letter No. 14

From: G. Hancock

Comment No.	Response
1	One of the principal assumptions shaping this analysis is that Forest Land and Resource Management Plans establish levels of outputs of goods and services, and this EIS displays several ways to manage vegetation to support those levels in alternatives D through H. Though management for these specific goods and services sounds familiar, it should not be viewed as Forest Service desires or standard practices. Land and resource management planning is an exhaustive process with very intense public participation. Output goals and objectives are based on this partnership with the public.
2	Research needs identified on pages IV-129 and 130 of the Draft EIS will be considered by Forest Service researchers as they establish priorities for their programs.
3	The commenter's preference for alternative B was included in the content analysis of all comments received. Alternative B does have some of the favorable effects listed. It also has effects considered unfavorable by other commenters. Pages II-68 and 69 of the Draft EIS summarizes the positive and negative effects of alternative B. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS.

15

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

Comments on Alternatives:

1 Alternative G (preferred) is too intensive. It's methods and degree of vegetative control are more appropriate to farming than to management of public forests. Alternative B would be a better choice, more in keeping with multiple-use and less slanted to the current timber first and foremost philosophy of the U.S. Forest Service.

Why? Intensive management, including vegetative controls outlined in Alternative G, effectively converts a natural or semi-natural forest into a tree farm. The majority of the American people do not support management activities that subvert the essential character of national forests as predominantly natural forests.

2 Other: Alternative B is the best choice, as it allows the degree of manipulation needed to manage the forests, but not to change their essential character. Even in Alternative B it would be preferable to eliminate herbicides entirely and use only fire (first choice), manual tools (second choice) and

Why? mechanical (last and very restricted choice.)

Agressive vegetation management, as in the Preferred Alternative is inconsistent with multiple-use management, as it will destroy native diversity in both the plant and animal kingdom, scenic values, and the quality of recreation.

Thomas L. Maddux (use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Thomas L. Maddux
Name: First MI Last
3400 Acre, Apt. 212
Street
Houston, TX. 77063
City State Zip Code

Response to Comments in Letter No. 15

From: Thomas Maddux

Comment No.	Response
1	Alternative G actually bans use of the more intensive mechanical tools and intense prescribed fire, specifically to avoid the effects you are concerned about. See also response to comments in Letter No. 17, Comment No. 1; and Letter No. 37, Comment No. 2.
2	The commenter's preference for alternative B was included in the content analysis of all comments received. See also response to comments in Letter No. 14, Comment No. 3.

16

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments. Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

1 The mechanical methods (i.e. mechanical tools) described (II-15 through II-20), excepting mowing tools, all possess a high potential for extreme disturbance and destruction of archaeological sites. Thus, the three category division pertaining to soil disturbance (II-15) is inappropriate as a basis for evaluation the impact of mechanical methods on cultural resources as low to high (II-65), except in terms
Why? of the frequency or degree of application of the different mechanical tools. In fact, it must be understood that the presence of any of the equipment shown on an archaeological site (see photos II-17 & II-19) poses a significant threat. In general, this heavy equipment should not be used in any area of the National Forest where archaeological field surveys have not indicated the absence of cultural resources.

Comments on Alternatives:

2 It is important to emphasize the statement that 'a cultural resource inventory is conducted when soil disturbing activities are anticipated' (II-39) as well as the associated provisions. In addition, because it is not clear what research activities comprise an 'inventory,' it should be stated that a 'field survey' will be conducted in areas where disturbing activities are anticipated. Again, the use of any non-mower heavy equipment would constitute a ground disturbing activity
Why? capable of destroying an archaeological site, regardless of the chosen alternative.

Other: Finally, we would agree and emphasize the statement (IV-107) that the 'loss or damage of cultural resources on other lands [increases] the significance of such resources on Federal lands.' Further, the loss or damage of an archaeological site is nonrecoverable since this type of resource is finite and nonrenewable.

Why? Thank you for this opportunity to comment.

C. Michael Baker

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Dr. C. Michael Baker
Last
FOUNDATION FOR NORTH CAROLINA ARCHAEOLOGY, INC.
P.O. Box 18822
Asheville, NC 28814
City State Zip Code

Response to Comments in Letter No. 16

From: C. Michael Baker

Comment No.	Response
1	The classifications of mechanical tools as low, moderate, or high intensity on page II-15 of the Draft EIS are intended to describe their abilities to affect soil and water resources. These classification schemes are not applied to cultural resources anywhere in the EIS. On page IV-106 of the Draft EIS, effects on cultural resources from mechanical treatments are described as increasing with depth of soil penetration by the tool or with soil movement. Thus, while ripping tools are low-intensity for effects on soil and water resources, their effects on cultural resources can be substantial without mitigations described on page II-39 of the Draft EIS.
2	Mitigation number 10 on page II-39 in the Draft EIS does not just emphasize the need for a cultural resource inventory, it requires one. Language has been clarified to include "field survey" on page IV-48 of the Final EIS.

17

VEG MGT

CONTACT REPORT SHEET

Contact: TRUETT SMITH Report Filed By: DOUG WILLIAMS

Representing:
☒ Self
☐ Organization

Date: MAY 31, 1988

Address: 1255 EAST COUNTY LINE ROAD
G-6
JACKSON, MS 39211

PHONE: 956-4087

Contact Initiated By: ☐ Us ☒ Them

Method: ☒ Phone: ☐ Personal: ☐ Letter: ☐ Meeting (No. Attending _____)
☐ Other: _____

Comments:

Include: LMP Item(s) discussed; Material Distributed; Issue or Concerns Raised

Read about Veg Mgt DEIS in the newspaper. Called to say very upset that the Forest Service would kill hardwoods. Was frustrated that we were returning to method/practice of twenty years ago and killing 100 year old trees.

1

Against closing roads one bridge, looks like FS is just working for the timber companies.

"Send situation to see the pine cut and that primarily in mixed stands".

Against any aerial application of herbicides.

Response to Comments in Letter No. 17

From: Truett Smith

Comment No.	Response
1	Comments noted. Vegetation management is necessary to accomplish many resource management goals and objectives. Environmental conditions at the project level will determine the specific need for, and amount of, vegetation management to be done. Target plants, as well as some individual non-target plants, are injured or killed by all vegetation management methods. However, mitigation measures such as number 17 on page II-41 of the Draft EIS requires that projects be designed in such a manner so as to protect and manage for a variety of species.

18

To whom it may concern,

1 I recommend alternative B. I would also like to be on your mailing list.

Sincerely,
Daun Gilchrist-Young

Response to Comments in Letter No. 18

From: Daun Gilchrist-Young

Comment No.	Response
1	The commenter's preference for alternative B is included in the content analysis of all comments received. Copies of the Final EIS (all volumes) are being sent.

19

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments. Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Very well done, presents facts, actions, issues, alternatives, requirements, consequences, alternatives and your choice in a very professional manner. It is easy to read and understand.

Why? In addition to those things mentioned above, it obviously is very well prepared and edited. The team should be congratulated for their obvious intent to make this a meaningful and professional study.

1 **Comments on Alternatives:** After careful study of all eight alternatives it is apparent that your preference for alternative G is logical, economical, and presents the best plan for vegetation management.

Why? Being an avid hunter of deer and turkey on Kisatchie, I am out in the woods almost daily during the hunting and scouting times. While your plan would maximize production of forest and timber range it also makes provision for production of game. Much of Kisatchie consists of very sandy soil. By using herbicides more frequently and machines less frequently more soil will stay in place.

Other: I think the FS is finally getting the message from the public that our forests should be managed for multipurpose uses - hunting, recreation, hiking, camping, bird watching etc - and not just for growing pine trees.

Why? With less and less private land available for public use, the federally owned forests will be utilized more and more by those who do not have the use of other land. You should be congratulated for "looking to the future" and managing the forest in that manner.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Peyton Cunningham Jr.

Name: First MI Last

P.O. Box 837

Street

Natchitoches, La. 71457

City State Zip Code

Response to Comments in Letter No. 19

From: Peyton Cunningham, Jr.

Comment No.	Response
1	The interdisciplinary team took its writing assignment seriously and is pleased that the commenter finds the EIS easy to read and understand. Favorable effects on wildlife in alternative G are considered (as well as unfavorable effects) in the analysis in chapter IV.

20

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

1 Comments on Alternatives: ALTERNATIVE C

Why? PERSONALY Prefer Minimum HERBICIDE USE - Realize IT is needed in some cases PREFER THE USE OF PRESCRIBED FIRE AS MAIN TOOL in Vegetation MANAGEMENT

Other: You HAVE DONE GOOD WITH THE DRAFT Impact

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

JAMES E HITT
Name: First MI Last

P.O BOX 4549
Street

JACKSON MISS 39216
City State Zip Code

Response to Comments in Letter No. 20

From: James Hitt

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter feels a good job has been done on the EIS. Please also see response to comments in Letter No. 74, Comment No. 1.

21

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments. Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: I FEEL THAT IT WOULD BE IMPOSSIBLE TO COMPLETE A SCIENTIFIC ANALYSIS AND NOT OVERLOOK SOMETHING THAT WOULD BE IMPORTANT
Why?

Comments on Alternatives:
I FEEL THAT NATURE GIVEN THE CHANCE WILL CORRECT ALL ENVIRONMENTAL PROBLEMS WITHOUT THE USE OF CHEMICALS.
Why?

Other:
1 THE BEST WAY TO CONTROL VEGETATION IN MY OPINION WOULD BE WITH MECHANICAL EQUIP. SUCH AS DOZERS, BUSH HOGS ON TRACTORS AND SAWS.
Why?
ALSO IT SEEMS AS IF SOME-ONE WANTS TO HAVE ONLY PINE TREES AND NO HARDWOOD TIMBER MOTHER NATURE DID AN OUTSTANDING JOB FOR THOUSANDS OF YEARS. (use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

TOMMIE LEE JONES
Name: First MI Last
6 HILLCREST DR.
Street
NATCHEZ, MS 39120
City State Zip Code

Response to Comments in Letter No. 21

From: Tommie Lee Jones

Comment No.	Response
1	We agree that at many times mechanical and manual methods may be the best techniques. However, based on site characteristics and species biological requirements, herbicides, prescribed fire, or biological methods may better achieve some project objectives. Site specific analysis (described in mitigation measure number 1 on page II-35 of the Draft EIS) will determine appropriate techniques and intensity of their application for each project.

22

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments. Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

The ANALYSIS is complete & thorough. You have done A good JOB.

Why?

Comments on Alternatives:

1 Good RANGE of ALTERNATIVES AND ALTERNATIVE G IS APPROPRIATE.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Thomas E. Fraser

Name: First MI Last

2527 Chumleigh Circle

Street

Tallahassee FLA. 32308

City State Zip Code

Response to Comments in Letter No. 22

From: Thomas E. Fraser

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter feels the analysis is complete and thorough, and that a good range of alternatives has been evaluated. The commenter's preference for alternative G is included in the content analysis of all comments received.

23

STATE OF ALABAMA
ALABAMA HISTORICAL COMMISSION
725 MONROE STREET
MONTGOMERY, ALABAMA 36130-5101

F. LAWERENCE OAKS
EXECUTIVE DIRECTOR

TELEPHONE NUMBER
261-3184

July 1, 1988

Steve McCorquodale
Forest Service
Regional Office
1720 Peachtree Rd., NW
Atlanta, GA 30367

RE: DEIS Vegetation Management
in Coastal Plain/Piedmont
Multiple Counties, AL

Dear Mr. McCorquodale:

Thank you for your letter pointing out the mitigation measures for cultural resources. While we feel these measures are good and applaud the Department of Agriculture's efforts to address impact to cultural resources, it is our opinion that monitoring of construction could allow severe damage to a site prior to discovery. Therefore, we feel that a cultural resource assessment is still warranted for ground disturbing activities. 1

Should you have any questions, please contact our office.

Sincerely,

F. Lawerence Oaks
State Historic Preservation Officer

FLO/GCR/cds

Response to Comments in Letter No. 23

From: F. Lawrence Oaks

Comment No.	Response
1	Mitigation measure numbers 10 and 11 on pages II-39 and 40 of the Draft EIS seek to reduce potential damages to cultural resources. Number 10 requires an "assessment" or "inventory." See also response to comments in Letter No. 16, Comment No. 2.

STATE OF ALABAMA
ALABAMA HISTORICAL COMMISSION
725 MONROE STREET
MONTGOMERY, ALABAMA 36130-5101

F. LAWERENCE OAKS
EXECUTIVE DIRECTOR

TELEPHONE NUMBER
261-3184

June 16, 1988

Steve McCorquodale
Leader, Vegetation Management EIS Team
USDA Forest Service
1720 Peachtree Rd., NW
Atlanta, GA 30367

RE: DEIS Vegetation Management
in the Coastal Plain/Piedmont
Multiple Counties, Alabama

Dear Mr. McCorquodale:

Upon review of the proposed project, the Alabama Historical Commission has determined the following. We agree with Section L, pages IV 106 and 107, that cultural resources could be endangered by the proposed activities. Therefore, we request that a cultural resource assessment be conducted for those previously undisturbed areas to be impacted by ground disturbing activities.

Should you have any questions, please contact our office.

Sincerely,

F. Lawerence Oaks

F. Lawerence Oaks
State Historic Preservation Officer

FLO/GCR/cds

24

Dear Forest Service, 6-16-88

1 We are against increased herbicide application to manage vegetation in our National Forest.

JAMES A. Jeffries
&
MARY L. Jeffries
417 CHEROKEE LN
LAFAYETTE, LA,
70508

Response to Comments in Letter No. 24

From: James and Mary Jeffries

Comment No.	Response
1	The commenters' preference for no increase in herbicide application is included in the content analysis of all comments received. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

25

United States Department of Agriculture
Animal and Plant Health Inspection Service
Animal Damage Control
Denver Wildlife Research Center
Florida Field Station
2820 East University Avenue
Gainesville, Florida 32601

16 June 1988

USDA Forest Service
1720 Peachtree Road, N. W.
Atlanta, GA 30367

Dear Forest Service Planners:

1 I am returning copies of the Draft Environmental Impact Statement Vegetation Management in the Coastal Plain/Piedmont, Volumes I and II. Although I commented on planning issues, I will not be able to review the planning documents. I hope that by returning these to you, you might be able to send the volumes to another individual interested and able to provide comments. Please remove my name from your list of reviewers.

Sincerely,

Kristin E. Brugger

Kristin E. Brugger
Wildlife Biologist

APHIS—Protecting American Agriculture

Response to Comments in Letter No. 25

From: Kristin Brugger

Comment No.	Response
1	Copies of the Final EIS will be mailed to the commenter so that they may be used for reference if needed.

26

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

Comments on Alternatives:

1 I am very glad to see the aerial application of herbicides reinstated. It's a shame that this method has not been used more in the past. I would hope to see acreage treated with this method increased in the Future.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

STEVE D. BURNS
Name: First MI Last

1661 LEA DR
Street

MILTON FL 32570
City State Zip Code

Response to Comments in Letter No. 26

From: Steve Burns

Comment No.	Response
1	The commenter's preference for aerial application of herbicides is included in the content analysis of all comments received.

27

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1

Comments on Scientific Analysis:

I feel the "Draft Environmental Statement" proposes the most thorough study and analysis of vegetation management ever attempted by the Forest Service in the Coastal Plain/Piedmont area.

Why?

I get this impression from reviewing Chapters V & VI; "List Preparers" & Public Participation & Consultation With Others"

Comments on Alternatives:

Each of the 5 alternatives is well explained as well as the technique & intervals of treatment.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

M/M C. E. Anderson
Due West Retirement Center
P. O. Box 307
Due West, S. C. 29639

C. E Anderson
Name: First MI Last

Street

Due West S.C. 29639
City State Zip Code

Response to Comments in Letter No. 27

From: C. E. Anderson

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter finds the EIS thorough, and the public participation process significantly contributed.

28

Merlin M. Bruner,
220 Pendleton Rd.,
Clemson, S.C. 29631

COMMENTS ON VEGETATION MANAGEMENT IN THE
COASTAL PLAIN/PIEDMONT

Although this is a voluminous report, I am impressed, and

1 fully approve of the manner in which the USDA Forest Service analyzed the five classic methods in vegetation management--management as applied to national forests and national grasslands situated in the Coastal Plains/Piedmont.

The report bears witness to the enormous task, and responsibility, of the Forest Service in its custodianship of some 4,612,000 acres included in all, or parts, of the 23 National Forests that occupy the area under study.

In providing for the many uses of these forests, as required by the public, the Service must answer to many masters. Accordingly, hard decisions and trade-offs must be made. This inevitably leaves some groups unhappy.

The environmental consequences of vegetative manupilation--timber harvests, regenerating desirable stands of timber and associated vegetation--are fully analyzed in the draft. Alternate treatments are proposed to soften their impact on the environment. However, despite carefully-followed plans and procedures, some criticism will follow. (But "it is not possible to make an omlet without breaking the eggs!" Furthermore, nature is a great healer when given time. Restoration of the scars can be hastened by nudging nature through the application of methods suggested in the draft.)

(more)

Response to Comments in Letter No. 28

From: Marlin Bruner

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter feels the analysis is complete. The commenter's preference for balanced use of all five methods was included in the content analysis of all comments received.

Within the area under study, vegetation management is presently applied to 553,500 acres per year...12 percent of nation's forestland within the Coastal Plain/Piedmont. And 83.6 percent of this, or 463 ,000 acres, are treated by prescribed fire.

The wide use of fire is a wise choice, because it is relatively inexpensive, effective, harmonizes with the environment and is beneficial to wildlife. Furthermore, it provides seedbed preparation, and reduces fire-hazard.

Adding herbicides to prescribed burning, as the draft describes, combines a relative inexpensive, and effective, major-design for vegetation management. Minor treatments such as mechanical, manual and biological methods can be applied as local situations might require.

#

29

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: page II-53 Buffers

1 (28) width of untreated buffer at boundaries of private land is not specified.

Why? should be specified..but should probably vary depending on vegetation and ~~type of~~ land use.

2 Comments on Alternatives: Prefer Alternative G

Why? 1. Increased wood yields are important to economy.
2 Provides best mix of successional stages which favors a variety of wildlife & outdoor recreation
3. Forest is less vunerable to fire & pests.

Other:
where feasible aerial application of pesticides is preferred.

Why? Less exposure to workers & environmentally safer. Gets large drops blown down under proper weather conditions. Mist blowing creates fine particles & blows them up into air flow above trees which is not good. Workers more exposed in hand application.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Erich H. Krumm
Name: First MI Last
500 Southwood Drive
Street
Huntsville TX 77340
City State Zip Code

Response to Comments in Letter No. 29

From: Erich Krumm

Comment No.	Response
1	An untreated 100-foot buffer left at private land boundaries, unless the landowner agrees to closer treatment, has been added to mitigation measure number 17 (page II-60 of the Final EIS).
2	The commenter's preference for alternative G was included in the content ananlysis of all comments received. Some of the favorable effects listed for alternative G do occur, but so do effects considered unfavorable by other commenters. Please see table II-8 (pages II-64-65 in the Draft EIS) for a summary of effects by alternative.

30

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Excellent

Why? Details specific on all alternatives affected environment and Environmental Consequences / risk assessments etc

Comments on Alternatives:

1 I agree with preferences outlined for Alternate G. There are some site specific practices of other alternates

Why? that may apply to targeted problems on various sites.

Other:

None

Why?

A very fine Study.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

SAM R. BARNES M.D.
Name: PO. BOX 1851 Last
TRINITY, TEXAS 75862
Street
City State Zip Code

Response to Comments in Letter No. 30

From: Sam Barnes

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter finds the analysis excellent. The commenter's preference for alternative G was included in the content analysis of all comments received.

Alabama
Forestry
Association, Inc.

555 Alabama Street □ Montgomery, Alabama 36104
(205) 265-8733

June 30, 1988

Mr. Steve McCorquodale
U.S.D.A. Forest Service
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

Dear Mr. McCorquodale:

Thank you for the opportunity to review the DEIS vegetative management plan just released by the Forest Service. There is some excellent information that will be useful as reference material for other related activities in vegetation management for forest applications.

The DEIS for vegetative management is a most in depth study on the effects of all forest management treatments. The consideration of all management options indicates the U.S.F.S. interests in all uses of our public forests. The scientific analysis is most complete and provides sound information that is easily understood.

The AFA would support the implementation of management alternative G. This alternative offers the best combination of forest management methods because it is the most cost effective for the desired results. Alternative G is also very diverse in silvicultural management methods and will allow for balanced forest resources, other than timber production, without sacrificing a positive return from timber investment.

The increased use of herbicides will reduce overall reforestation costs and still be within sound environmental guidelines for watershed protection and will help maintain good soil conditions through reduced sediment run-off.

1 The only question I have in the accuracy of the report is in Section III on the employment statistics. These figures seem to be quite low for the forestry sector in Alabama. Dr. Bill McKee published an extension bulletin on "Forestry, Its Economic Importance to Alabama" (ANR-456) which shows much higher employment figures.

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Response to Comments in Letter No. 31

From: William Jones

Comment No.	Response
1	Dr. McKee is one of the scientists with whom we have routinely consulted, and while his data on employment in Alabama may be more precise than the data used in chapter III, the EIS uses one source (Bureau of Census) for all data (all States) to allow for more consistent comparisons.

Mr. Steve McCorquodale
June 30, 1988
Page Two

The overall report is good and will be helpful in making sound management decisions.

Sincerely,

William C. Jones, III
Private Woodlands Coordinator

WCJ,III/sh

32

475 E. Main St #3
Franklin, N.C. 28734

Dear John,

I have recently written Dale Robertson, Terry Sanford, Jamie Clarke, and Mrs. Reagan asking them to intercede on our behalf in Western North Carolina. Our area is unique and yet Nantahala & Pisgah National Forests are lumped with all southern forests in their care & management. You are not really listening to us the
1 public. I talk a lot with people & have found supporters of clear-cutting etc. as rare as the membership in the Forestry Service.

Tourism is becoming more important to our economy day by day. The people want the character & beauty of our mountains to continue. Selective & small group cutting is much more suitable to our steep slopes & helps prevent erosion.

2 It appears to me that the wood fiber industry has an undo influence over your management plans. You parallel their techniques. Our National Forests in the mountains should never compete with Piedmont & Coastal Plains Forests. You know that. Yet you try to reason otherwise & it's false.

I received Vegetation Management for Coastal Plain & Piedmont and have read & continue to study volumes I & II. I am concerned at the number of people involved in the study that are agents
3 of our chemical & wood fiber industry. They profit from decisions made by the Forest Service as to use of herbicides and pesticides. Isn't this conflict. Admissions are made that there are tremendous gaps as to knowledge of how these chemicals affect life of all kinds in our forests. I do not
4 believe you should be joining ranks with the destroyers. What species will we expect after you have put us at risk through mechanical means is tedious & hard work it is for better that what we don't know can happen. It has already ended up in the courts in some areas from Counties.

Response to Comments in Letter No. 32

From: Bob Gerry

Comment No.	Response
1	We disagee that the "Nantahala & Pisgah NFs are lumped with all southern forests in their care and management." Each forest has its own Land and Resource Management Plan developed with significant public input, and the Vegetation Management EIS is three separate subregional documents recognizing distinct differences in the Southern Region. See also response to comments in Letter No. 14, Comment No. 1, and Letter No. 79, Comment No. 1.
2	Based on a variety of information found in the National Forest Land and Resource Management Plans for forests in the Southern Region, it is seen that the Nantahala and Pisgah National Forests do have a very different management emphasis than the Coastal Plain/Piedmont forests. A separate EIS is being prepared for the Appalachian Mountains forests.
3	Page V-6 through V-8 of the Draft EIS lists consultants, advisers, and reviewers. The interdisciplinary team and a private contractor, Labat-Anderson Inc., are responsible for the entire analysis. Consultants, advisers, and reviewers acted only in their titled capacity and did not prepare the analysis. The team sought a thorough review from the most knowledgeable scientists available, regardless of affiliation. Possible biases were balanced by the inclusion of university professors, citizens, and other State and Federal agency personnel.
4	See response to comments in Letter No. 150, Comment Nos. 20 and 23. While there are significant data gaps, modeling is displayed which shows estimates of the potential effects of herbicides on various environmental elements. When modeling was done we always made conservative (health and safety protecting) assumptions to fill data gaps. Since most of the models multiply one risk times another, risks have actually been magnified far beyond what is probable in the field. Scientific evidence presented in the Risk Assessment and the EIS supports the position that herbicides can be used as an effective, relatively risk-free tool in the forest environment. Mitigation measures for the use of herbicides (pages II-48-54 of the Draft EIS) including reduced application rates, emphasis on selective rather than broadcast use, buffering sensitive areas, etc. are all used to improve the relative degree of safety for workers, the public and wildlife, and to minimize adverse effects to non-target plants and the environment.

You as a decision maker will be held responsible for these risks. Our wild life, plant life water supply are more important to us than all the dollars you think you are saving for whom. You must reconsider this path very seriously and alter direction.

5 Will you be issuing Vegetation Management for the Mountains soon? I will be replying more formally to the Piedmont + Coastal Plains issues soon. Please send me the mountain Study when it's ready.

In the meantime I will continue to write to representatives in Government, newspapers and other influential people to support us in our struggle to preserve this small area of North Carolina for the enjoyment of visitors, us + our children + grandchildren.

For eons the natural order has managed our forests very well. Our Creator or Nature whatever you may call it, the natural order, has produced such an abundance + diversity of species that we shouldn't be tinkering with it. It puts all your plans to shame. What we did with selective cutting preserved the predominance of hardwoods as it should be because the Condition favor them. By expanding soft woods you are satisfying the fiber industry which has adequate supplies in Piedmont + Plains

It appears you are not carrying out your mandate to reasonably + responsibly manage our National Forests especially Nantahala + Pisgah on behalf of the public which you are supposed to serve.

You've asked for frankness and you have it. Don't get us involved and then proceed to do things your way.

Sincerely,

Bob Gerry

(Continuation of Forest Service response)

5 The Draft Environmental Impact Statement for Vegetation Management in the Appalachian Mountains will be available for public review in early December 1988.

33

Response Form

(Since I am passing my copy of VEGETATION MANAGEMENT, Vol. 1, along to the president of the Natchitoches branch of the National Audubon society, I am sending a letter instead of your form)

COMMENTS ON ALTERNATIVES:

I favor alternative E

1

Why? because of the emphasis on manual methods.

The Southern Region of the Forest Service could start a revolutionary method and enter a new future by ceasing to use all gasoline powered tools. The use of horses, mules, and manpower may sound like a step backward, but it could be a step into a world with an intact atmosphere and fuller employment.

Here is a chance for a branch of the U. S. government to proclaim that the well-being of the world is more important than profits from timber sales.

Carolyn M. Wells
607 Williams Avenue
Natchitoches, LA 71457

Response to Comments in Letter No. 33

From: Carolyn Wells

Comment No.	Response
1	The commenter's preference for alternative E was included in the content analysis of all comments received. Alternative E does have some of the favorable effects listed. It also has effects (such as high risk of accidental injury) considered unfavorable by other commenters. Pages II-70 and II-71 of the Draft EIS summarizes the positive and negative effects of alternative E. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS. As a point of clarification, manual methods described by the EIS (page II-20 of the Draft EIS) include the use of gasoline-powered tools.

34

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: I'm sorry I can be no help in this catagory because I don't understand what you want to ~~know~~ be discussed here

Why?

Comments on Alternatives: I like alt. G

1 Why? It seems like it would allow for more area to be treated. Also, if it isn't going to affect endangered species, the game species should be safe ~~too~~ too. I fin this is very important

Other:

Alt ~~G~~ A doesn't seem like a good idea

Why? If the under-brush is allowed to grow up, I feel like that would be inviting another pine beetle problem.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Keith E Griffith
Name: First MI Last

362 Ridgewood Dr
Street

Bailey, Co 80421
City State Zip Code

Response to Comments in Letter No. 34

From: Keith Griffith

Comment No.	Response
1	The commenter's preference for alternative G because of its favorable effects on threatened and endangered species and game species as well, was included in the content analysis of all comments received.

35

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments. Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: In my opinion, the scientific analyses have been as thorough as possible at this point. There are, of course, some questions that can be answered only after many years of research. What, for instance, will be the long-term effects of certain herbicides on various species and ecosystems and ultimately on humans? Still, I believe that the research carried out, and conclusions drawn or speculated upon, have been relatively thorough and done in an apparent attitude of conscience and responsibility, even those that I do not necessarily concur with. I believe it will take more time and research - and actual experience - to know many answers conclusively.

Why?

Comments on Alternatives: Alternatives "A" & "B" are attractive in many respects, but in realizing that some manipulation & control will be necessary, my choices would be somewhere within Alternatives "C", "D", and "E". None are absolutely ideal. The use of herbicides is disturbing, but is occasionally expedient in controlling some rampant exotics. The destruction of so-called "target plants" means a value judgement is being made regarding "desirable" and "undesirable" native species. This is, I know, necessary when trees are regarded primarily as a crop; and the fact is we do have, and need, some tree crops. I do not believe, however, that

Why? our National Forests should primarily be used for tree farms to benefit a few wealthy individuals. The natural diversity of native plant communities should be much more encouraged. These are National Forests — not National Tree Farms — and are owned by the tax-paying public. For many of us, these are among the relatively few places where we can see what's left of our incredibly rich natural heritage. All plant and animal species native to our region should be allowed to thrive and expand where possible. Natural ecosystems should be maintained as they are. I realize that we must have some tree plantations; we all use wood. And I do not object to a limited amount of cattle and other livestock grazing some areas (as they have done in our region's wilderness

Other

Why? for, literally, centuries). But I am adamantly opposed to any trend toward further commercialization of our National Forests. We need more, not less, wild areas for all of our native plant and animal species, whether common, rare, threatened or endangered. And the use of herbicides and of heavy, soil disturbing machinery is something that should be severely limited, even as a control measure where at all possible.

(use additional sheets as necessary)

2 To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

#1 Certain real estate developer in our area [illegible] "trade" land he owns in Wakulla Co. for Apalachicola National Forest land abutting the Lake Bradford/Cascade Lakes chain in Leon Co. This is Public land that we all own. We (my family and I) are vehemently opposed to any such trade with this developer, or with any other individual or corporation. This beautiful interconnected wetland/upland ecosystem is one of the only one of the very last unspoiled wild areas adjacent to Tallahassee. It should be retained in public ownership, and NOT sacrificed for the monetary gain of any private development. There are lakes, ponds, marshes, hardwood swamps, cypress swamps, bayheads, titi thickets, willow thickets, creeks (and dried ones), hammocks, scrub hills, scrub, & flatwoods for all to enjoy. DON'T TRADE OUR PROPERTY OFF TO BE "DEVELOPED"!

3 Tear at perforation

Name: First R. Patrick MI Last Elliott

Street: 1629 Stanley Avenue

City Tallahassee State Florida Zip Code 32310

The operative use of heavy machinery in the forest is cutting. Hauling is largely done by trucks on roads. Skidding is largely done by tractors on trails. Heavy machinery is rarely used in the woods for anything else. Soil disturbance is largely confined to roads and trails. Soil disturbance is largely confined to roads and trails. Soil disturbance is largely confined to roads and trails

36

RESPONSE FORM

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However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

Comments on Alternatives:

Why?

Other:

1 contend that the Compartment Prescription made by a certified, conscientious Prescriptionist is an adequate EIS!

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Nelson W. Taylor
Name: First MI Last

136 Baker St.
Street

McClellanville, S.C. 29458
City State Zip Code

Response to Comments in Letter No. 36

From: Nelson Taylor

Comment No.	Response
1	Regulations of the Council on Environmental Policy for implementation of the National Environmental Policy Act outline in section 1501.4 when an EIS should be prepared. The Regional Forester's decision to prepare an EIS is based, in part, on this section of the regulations. See also introduction and need for action discussions on pages I-1 to I-3 of the Final EIS.

37

3626 Winslow
Arlington, TX 76015
July 8, 1988

Vegetation Management EIS
USDA Forest Service
1720 Peachtree Rd., NW
Atlanta, GA 30367

SUBJECT: Draft Environmental Impact Statement, Vegetation Management in the Coastal Plains/Piedmont. Mgt. Bull. R8-MB15, April, 1988.

Dear Sir:

I am alarmed that the subject Draft Environmental Impact Statement lists Alternative "G", calling for aerial spraying of herbicides, as the preferred alternative for vegetation management on Forest Service lands. Could you send me more information on the intended use of herbicides on Forest Service lands, particularly the LBJ National Grasslands and the Caddo National Grasslands?

I could understand the spot use of herbicides for such things as the control of Kudzu vine infestations in the South. However, widespread aerial spraying eliminates not only target vegetation, but also any wildflowers or rare and endangered species that are trying to reestablish. Also, some herbicides, such as 2,4-D, are well-known for their harmful impact on wildlife. Aerial spraying is sometimes used to eliminate post oaks or mesquite from rangeland in North Texas. I hope no such plan is contemplated for the LBJ and Caddo National Grasslands. Controlled burning is the preferred method for maintaining grassland, since native prairie grasses and forbs are adapted to a fire environment. 1

I am also concerned about the use of herbicides to eliminate hardwood seedlings from pine tree plantings on Forest Service land in East Texas for the same reasons. Public lands should be managed for natural diversity, not as some vast agricultural cooperative along Russian Communist lines. 2

Sincerely,

JOHN J. CLEGG
Native Plant Society of Texas
Native Prairies Assn. of Texas

Response to Comments in Letter No. 37

From: John J. Clegg

Comment No.	Response
1	Recognizing the potential risks from broadcast (ground or aerial) application of herbicides our emphasis is placed on selective use of carefully chosen herbicides (mitigation measures numbers 5 and 6 on pages II-48-49 of the Draft EIS). The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activitiy within an alternative that allows the use of herbicide methods. Remember, also, that allocation of tools to a specific project is not done within this EIS, but rather is done by each forest or grassland at the district level on a site specific basis. See also response to comments in Letter No. 295, Comment No. 2; and Letter No. 146, Comment No. 9. Additionally, we recognized specific concerns about 2,4-D. Pages II-48 through II-50 of the Draft EIS contain mitigations (numbers 1 through 8) which (among other things) require that all Class A herbicides (page II-33 of the Draft EIS) be considered and be found to be inadequate for the specific treatment before considering 2,4-D for use. If, 2,4-D is clearly shown to be the only option, then subsequent analysis must be done to demonstrate that the proposed treatment can be done in an environmentally sound manner which simultaneously protects worker health and safety.
2	Vegetation management projects will not eliminate hardwoods. Mitigation measures, such as number 1 on page II-35 of the Draft EIS require managers to evaluate potential adverse effects on many environmental elements including vegetation diversity. Mitigation measure number 17 on page II-41 of the Draft EIS specifically requires protection and management for the production of a variety of overstory and understory vegetation during the design and implementation of all site preparation, timber stand improvement, and wildlife habitat improvement projects. See also response to comments in Letter No. 310, Comment No. 2.

38

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments. Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:
I think that you have done a very good job on Scientific analysis.

Why? what I read.

Comments on Alternatives:
1 Alternatives G seems sensible and all these experts know a lot more about it than I do anyway

Why? College education and Higher Schooling

Other: I live close to Croaton forest. the rangers there do a good job considering the number of men the number of acres of forest they look too. the public need to be made more aware of

Why? the need for the forest and leaving part of this great land as was undisturbed not turn the whole world into cities.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Robert W. Hill
Name First MI Last
329 Gibbs Rd
Street
New Bern NC. 28560
City State Zip Code

Response to Comments in Letter No. 38

From: Robert Hill

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter feels a very good scientific analysis was done. The commenter's preference for alternative G and recognition of a need for better public awareness have been included in the content analysis of all comments received.

39

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1

Comments on Scientific Analysis:

Use of a wick-Bar as an application method should be evaluated.

Why? 1) They are a safe method of application.
2) only tagted plants are affected.
3) They conserve herbicide.

Comments on Alternatives:

Wick-Bars could be used on ROW corridors, wildlife openings, seed orchards, Range pastures levee systems and Recreation areas.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Steven L. Duzan
Name: First MI Last

710 W. 15th
Street

Russelville Ar 72801
City State Zip Code

Response to Comments in Letter No. 39

From: Steven Duzan

Comment No.	Response
1	Work continues to modify wick-bar technology for forestry use and rights-of-way maintenance. However, at present the wick-bar is used only in forest tree nurseries or similar "farming" situations. Operationally they have several practical disadvantages in non-agricultural field situations. Contrary to engineering specifications, wick-bars can be sloppy; undesired drips have unpredicted and often unwanted environmental consequences. They are not selective tools. Although they do select on the basis of height of plant, they have a broadcast effect on vegetation of greater than a certain height. The bar itself poses serious physical problems, bouncing with unevenness of terrain results in uneven height coverage. Wick-bars also give incomplete coverage when lifted to get past obstructions (such as a desirable tree species).

40

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Very good.

Why? Because they give the entire picture of various possible methods of managing our National Forest Lands.

1 Comments on Alternatives: I prefer Alternate "G"

Why? A. Less Soil Erosion.
B. By observing the use and positive results on my personal forest lands of Herbicides.

Other: --

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

John L. Greer
Name: First MI Last

R-2 Box 287
Street

Union S. C. 29379
City State Zip Code

Response to Comments in Letter No. 40

From: John Greer

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter feels a very good analysis has been done. The commenter's preference for alternative G was included in the content analysis of all comments received. Some of the favorable effects listed for alternative G do occur, but so do effects considered unfavorable by other commenters. Please see table II-8 (pages II-64-65 in the Draft EIS) for a summary of effects by alternative.

41

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:
Most analysis are in line with past use and not harmful to the environment if used as per labels.
Picloram has been used for 25 years and there is ~~no~~ absence of proof that it had harmful effects on the environment general or human

1 Why?
Need to publish the amount and acres that picloram was used on the reasons that some should be used to accomplish certain jobs.

Comments on Alternatives:
I favor alternative H

2 Why?
This Alternative would provide the Forest Service with approval to use the method of vegetation Management need to provide the most service to the public with proper supervision rights to soil, water Threated and Endangered Species.

~~Other~~:
It has been proven in NFT that with proper Contract Admin Mech site preparation will do very limited damage to soil & water.

~~Why~~? Alternative E & G may look good on the economics budget but in the estimation of a Hand of timber alternative H will have the most return to the people of the U.S.
But past experience the F.S. Admin will give in to the Med & Ely's types and stay proper Management
(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Mack L. Little
Name: First MI Last

210 Copeland
Street

Lufkin Tx 75901
City State Zip Code

Response to Comments in Letter No. 41

From: Mack Little

Comment No.	Response
1	In table 4-1 of the risk assessment (page 4-3, appendix A) we show that approximately 23,000 acres were treated with picloram in 1986 in the entire Region; this included site preparation, conifer release, hardwood release, thinning, wildlife habitat improvement, and noxious weed control.
2	The commenter's preference for alternative H was included in the content analysis of all comments received. Alternative H does have some of the favorable effects listed. It also has effects considered unfavorable by other commenters. Pages II-72 and II-73 of the Draft EIS summarize the effects of alternative H. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS. Also see response to comments in Letter No. 14, Comment No. 1. Proper contract administration is essential in attaining work quality and environmental protection.

42

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments. Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

This is an excellent and thorough Study — well done in view of the many necessary considerations and options Have only a few minor thoughts for Your consideration as follow below.

~~Why?~~

~~Comments on Alternatives~~:

1 Page III-15 The Fox squirrel and Bachman's warbler (ION SWAMP, Francis Marion area) should be considered as sensitive in South Carolina.

2 ~~Why?~~ Page III-16 Identify and preserve any "sweetgrass" (common name) growing in the Southeastern and Gulf coastal areas - rapidly disappearing - used in basket making in South Carolina

3 Page IV-61 Habitat Alteration ROW. and openings maintenance - Should consider the possible ill effects on song birds due to the creation of "edge effects" - see attached article

~~Other:~~

4 ——. No Activity during turkey nesting time! (in critical areas)

~~Why?~~ —— Save existing wetlands at all other costs — No drainage canals, etc.

C. T. Paysinger 7-12-88

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Charles Thomas Paysinger
Name: First MI Last
783 Condon Drive
Street
Charleston South Carolina 29412
City State Zip Code

Response to Comments in Letter No. 42

From: Charles Paysinger

Comment No.	Response
1	The fox squirrel is currently considered a game species by the South Carolina Department of Wildlife and Marine Resources (SCWMRD). If it should be reclassified by the SCWMRD, it would be added to our sensitive species list. A discussion of Bachman's warbler has been added to the Final EIS.
2	According to Doug Raynor of the SCWMRD, "sweetgrass" is actually several species of coastal grasses, none of whch are currently considered rare by the SCWMRD.
3	See chapter IV of the Draft EIS for a discussion of "edge effect" in relation to ROWs and openings. Please note that most of these effects are due to the creation of forest openings, rather than to subsequent treatments and are the result of planning decisions which are beyond the scope of this document.
4	Generally, underburns for wildlife and fuels reduction are not conducted during turkey nesting season. Site preparation by burning or other methods, or habitat treatments to meet special needs (such as improvement of endangered species habitat), may occur during turkey nesting season. Considering the limited acreages and limited number of turkey nests potentially disturbed, benefits to turkey from vegetation management probably outweigh nest losses. Except for managing critical wildlife habitat, vegetation management is usually not done in wetlands, which are protected by buffers (section II-E).

43



North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27611, 919-733-3391
Charles R. Fullwood, Executive Director

July 15, 1988

Mr. John E. Alcock
Regional Forester
USDA Forest Service, Southern Region
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

Dear Mr. Alcock:

We have reviewed the "DEIS for Vegetation Management in the Coastal Plain/Piedmont".

Overall, this document is well written and covers the relevant issues concerning management of vegetation on National Forests. Methods proposed are described in detail and are sound techniques. However, we have concerns relative to wildlife habitat and the allocation of the techniques, especially when dealing with the Croatan and Uwharrie.

1 The herbicides mentioned are all systemic and only a few are selective. This would mean a total loss of broadleaf plants (hardwoods) treated, whereas the use of manual or low soil disturbance mechanical methods would allow for resprouting of hardwoods.

2 Since the N. C. Wildlife Resources Commission has concurrent jurisdiction with the U. S. Fish and Wildlife Service when the welfare of threatened and endangered wildlife species is concerned, we would like to be notified whenever a control project may affect these species as well as other native wildlife and fish species.

3 Tree injection and chop and spray are herbicidal techniques used on hardwoods to decrease competition in the stand. These techniqus have their place in forest management; however, we would not like to see overuse in the coastal plain where a constant decline in the hardwood component has occurred over the years. Hardwood-pine mixtures, for improved wildlife habitat, should be encouraged at every opportunity.

Response to Comments in Letter No. 43

From: Richard Hamilton

Comment No.	Response
1	While most of the herbicides discussed are systemic, they are applied by selective techniques at least 70% of the time when used in the general forest area in every alternative but H. Selectivity of herbicide effects is a function of both of these factors. A broad spectrum herbicide injected into stems of target vegetation will cause the total loss only individual plants treated. It will not cause the loss of all hardwoods from the site.
2	Your Agency should make arrangements with the National Forests in North Carolina to review proposed projects in your State.
3	Application of herbicides can easily be done in a selective manner which favors and/or maintains hardwoods in a stand. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. Environmental conditions at the project level will determine the specific need for, and amount of, vegetation management to be done. Target plants, as well as some individual non-target plants, are injured or killed by all vegetation management methods. However, mitigation measures such as number 17 on page II-41 of the Draft EIS requires that projects be designed in such a manner so as to protect and manage for a variety of species.

4 The statement that reads, "The Forest Service routinely manages habitat for game and nongame wildlife and fish. State wildlife resource agencies are responsible for establishing wildlife management regulations and enforcement". This statement is not accurate since the Wildlife Commission plays a direct role in habitat management on all National Forests in North Carolina. Commission wildlife management crews conduct numerous projects on USFS lands, from waterfowl impoundment construction to field plantings and maintenance.

5 We noticed that Roughleaf loosetrife and Venus flytraps are omitted from the list of sensitive, threatened, rare, and endangered plants.

6 The prescribed burning rotation for National Forest in the coastal plain would average 4 years. For wildlife habitat, this frequency should be 3 years in managed pine forest so that deer, turkey, and quail can better benefit. After 4 years growth, turkeys would not be able to fully utilize a typical pine forest due to the understory density.

7 Alternatives best suited for wildlife habitat are E, F, and G in that order.

Alternative E calls for the highest level of prescribed burning and the lowest level of herbicide treatment. Manual treatments would be high. This means that eradication of hardwoods would be much lower than other alternatives. By treating hardwood competition manually, the plants are able to resprout, whereas herbicidal treatments would completely kill the stems and roots. Mechanical methods proposed would be low which would result in a smaller amount of hardwood stems being uprooted, chopped, pushed, and piled.

Alternative F represents the level of vegetation control currently present. Herbicides are moderately used and mechanical treatments are highly preferred over manual treatments. Prescribed burning is slightly lower than Alternative E. The present level of vegetation control has reduced the valuable component on the Croatan. We would like to see this trend reversed.

Alternative G has the highest level of herbicide treatments other than Alternative H, an unreasonable option. This heavy use, to include aerial application, is to replace the use of mechanical and manual treatments currently being used. Prescribed burning would stay about the same. The problem we have with this Alternative is that the increase in herbicide use would again result in total removal of hardwoods on selected sites.

(Continuation of Forest Service response)

4 The statement has been corrected in the Final EIS to reflect this role.

5 Roughleaf loosetrife has been added to the list of endangered plants (appendix E, Final EIS). Venus flytraps are still not listed. Species in appendix E of the Final EIS reflect the correct status of threatened, endangered, and proposed species as designated by the U. S. Fish and Wildlife Service in the Federal Register which are known to occur on national forest lands in North Carolina. Species known to occur on national forest lands in North Carolina which are identified by the Forest Service as sensitive also are shown. As the National Forests in North Carolina update their list of sensitive species, based on coordination with the State of North Carolina, this appendix will be updated.

6 Although 3 years may be a preferred burning rotation for wild turkey in the Coastal Plain, the average of 4 years reflects the habitat needs for a variety of wildlife species which utilize different successional stages. Impacts to woody understory species development, as well as the production of herbaceous species, were considered. It also reflects the reality of accomplishing burns within the constraints of smoke management, weather, and economics.

7 The commenter's order of preference for the alternatives was included in the content analysis of all comments received. Alternatives E, F, and G do have some of the favorable wildlife effects listed. They also have effects on some wildlife types and their habitat which are considered unfavorable by other commenters. The unreasonableness of herbicide use such as in alternative G is not supported by the analysis of herbicide effects on wildlife in appendix A or chapter IV, part D. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

Alternative G, which is preferred by the USFS, has its pros and cons concerning wildlife habitat. The EIS report mentions an increase in herbaceous vegetation will occur as a result in the increase in herbicide use under Alternative G. The Croatan does not need additional herbaceous vegetation but rather an increase in the hardwood component of the overall forest. Steps in this direction should be implemented. Recall that the preferred alternative chosen for the Land and Resources Management Plan was designed "to achieve a high level of diversity of plant and animal communities and species on the Forests". The vegetation management alternative to be chosen should be in line with this objective.

The N. C. Wildlife Resources Commission favors Alternative E ■■ being the best for wildlife habitat while still allowing necessary vegetation control.

Sincerely,

Richard B. Hamilton

Richard B. Hamilton
Assistant Executive Director

RBH/ld

cc: Hal S. Atkinson, Jr.
Don Baker
Earl Gillis
Harlan Hall

44

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: * very well researched and presented!

1 --- add consideration of impact on stable QUANTITY of water supplies. below mgmt. bdys. (downstream).

Why?

--- to ~~reduce~~ minimize emergency measures during local population "explosions" and sporadic weather disasters (flood, drought, etc.)

Comments on Alternatives:

-- excellent work on alternative components.

2 -- it seems premature to come up with a "preferred alternative" at this stage.

Why? Forest mgmt. planners should be given more leeway to select whatever alternatives, or parts thereof (A-H), fit conditions on a given land area.

Other:

3 --- eliminate the last sentence on pg. 73, chap II, section I (eye).

Why?

-- statement seems to be pompous overkill.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Robert B. Johns
Name: First MI Last
851 Fireside Way
Street
Stone Mtn, Ga. 30083
City State Zip Code

Response to Comments in Letter No. 44

From: Robert Johns

Comment No.	Response
1	Discussion of water yield effects has been added to the beginning of section IV-G in the Final EIS.
2	Regulations of the Council on Environmental Quality for implementing the National Environmental Policy Act at section 1502.14 allow for the identification of a preferred alternative, if one exists, in the draft statement. After careful analysis by the interdisciplinary team and by management, a preferred alternative existed and was disclosed. On-the-ground managers still have latitude to select the best methods and tools to suit the site as emphasized in mitigation number 1 on page II-35 of the Draft EIS.
3	While various tables and figures contain notations of the preferred alternative, section I, is referenced in the table of contents and is essential for ease of understanding by all readers.

45

RESPONSE FORM

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However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: I prefer alternative "D" — I do not believe herbicides are an acceptable safe method of management due to short and unknown long term effects on wildlife, runoff into watersheds and the food chain.

1

Why?

Comments on Alternatives:

2 As for aerial spraying - in my opinion this is the most distructive management tool due to its broad brush use which produces unknown lethal effects to wildlife and entire ecosystems.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Inge S. Hutchison
Name: First MI Last

Box 3, LAKE GENEVA
Street

FLA 32660
City State Zip Code

Response to Comments in Letter No. 45

From: Inge Hutchison

Comment No.	Response
1	The commenter's preference for alternative D was included in the content analysis of all comments received. Analysis of known information about the herbicides evaluated in the Draft EIS indicates that there is no bioaccumulation of these chemicals. Without bioaccumulation there can be no "food chain" effects. Short half-lives and rapid excretion of these chemicals should protect wildlife and humans from either short- or long-term negative effects from these herbicides. Please refer to chapter IV of the Draft EIS for discussion of short- and long-term herbicide effects on wildlife. For effects on runoff, see response to comments in Letter No. 70, Comment No. 3.
2	Properly done, aerial application is a relatively risk free process which can cause less damage than other tools. The restrictions put on application equipment, selection of herbicide, rate of application, weather conditions, and worker clothing (mitigation measures for herbicide use, pages II-48-54 in the Draft EIS) make aerial application a safe and effective tool. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

46

STATE OF FLORIDA

FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES

DOYLE CONNER COMMISSIONER * 3125 CONNER BLVD. TALLAHASSEE 32399-1650

3311
July 18, 1988

Mr. John E. Alcock, Regional Forester
USDA Forest Service
1720 Peachtree Road, Northwest
Atlanta, Georgia 30367

Dear Jack:

The draft Environmental Impact Statement (EIS) for Vegetation Management on National Forests and National Grasslands of the Coastal Plain/Piedmont area represents a thorough and detailed analysis of land use alternatives. The document presents basic silvicultural operations in a very comprehensive and logical manner and effectively supports the process by which decisions are made. I believe this approach is both necessary and benefical to increase the public's understanding of accepted silvicultural practices.

I concur with the selection of alternative "G" with some reservations as to increased herbicide use. With the recent direction which EPA is taking concerning the use of pesticides in areas associated with endangered or threatened species, it may be difficult to justify increased use of forest chemicals. However, the section concerning environmental consequences and the proposed mitigation measures may satisfy EPA's concerns on the issue.

The economic data supports alternative "G" and seems to be in line with the other alternatives on a per acre cost. If herbicide use is restricted, then an increased burning program should maintain costs at an acceptable level. I would encourage a move in that direction.

1 My one suggestion is strictly for cosmetic purposes, but I feel the use of several out-dated photographs detract somewhat from an otherwise state-of-the-art document (see pages XVI, IV-28, IV-38). I would encourage the use of more current photos if possible in the final draft.

Again, let me state that the draft EIS was well-written in a comprehensive and understandable manner and highlights environmental concerns and considerations taken by the U.S. Forest Service in determining management strategies on public lands.

Sincerely,

Harold K. Mikell, Director
Division of Forestry
904/488-4274

HKM/bgc

Response to Comments in Letter No. 46

From: Harold Mikel

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received. Photographs on pages xvi, IV-28, and IV-38 of the Draft EIS have been replaced with more contemporary ones.

47

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Yes, an adequate scientific analysis has been completed and the Alternative respond to my concerns in a positive manner.

Why? The data for the scientific analysis appear to have been derived by objective means. Overall, the entire study appears to have been performed in a very thorough manner.

Comments on Alternatives: The Alternatives respond to my concerns in a very positive manner, because a vegetation manager can now utilize all the tools or techniques available.

1

Why? The Alternatives (except for a) should provide prescription treatment as needed. This choice should allow a vegetation manager to make the best decision for each situation.

Other: Although this draft EIS was conducted on the Costal Plain/Piedmont Macrosystem, most vegetation managers deal with Microsystems within the Macrosystem.

Why? With Alternatives available for their own choosing the vegetation manager can apply the best technique for each site.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

FROM NOW ON PLEASE MAIL TO —

OLD

EDWARD L. GRAVES, JR.
ALABAMA POWER COMPANY
P. O. BOX 2641
BIRMINGHAM, AL
35291

R. J. Benton
Name: First MI Last
c/o Alabama Power Co. P. O. Box 2641
Street
Birmingham, AL 35291-0706
tte Zip Code

C485

Response to Comments in Letter No. 47

From: R. J. Benton

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter finds the analysis objective, thorough, and adequate. The commenter's preference for making all tools and methods available for managers to make site-specific choices was included in the content analysis of all comments received.

48

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Very Comprehensive study of subject matter in an easy to read format. I cannot find any omissions in the document

Why?

Comments on Alternatives: Strongly Favor Alter. D + Favor alter. E, B, or C
Strongly Against Alter. G + H

Why? Prefer minimal manual, mechanical + fire control of vegetation as needed. Herbicides are easy + inexpensive methods of control, but are extremely dangerous for people and animals.

1

~~Other~~: I am pleased to read (II 48-54) that minimal ~~usage~~ usage + safety are stressed. Hopefully

~~Why?~~ these requirements will be strongly monitored in any herbicide application.

2

While safety of herbicides is stressed in the document, the almost total lack of

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Name: First MI Last

Street

City State Zip Code

Response to Comments in Letter No. 48

From: Unknown

Comment No.	Response
1	The commenter's order of preference for the alternatives was included in the content analysis of all comments received. Data disclosed in the EIS indicates that the herbicides and tools selected for consideration are safer than many of the other tools used in forest operations. Proper application of herbicides at the rates described as "typical" in the EIS (mitigation measure number 4 on page II-48 of the Draft EIS) should pose no significant threat to man or animals. See also response to comments in Letter No. 32, Comment No. 4.
2	See response to comments in Letter No. 150, Comment Nos. 20 and 23.

knowledge on effects is stated in. II 8-24 + II 51. DDT, Chlordane + cigarettes were once considered harmless - but are now known to be extremely dangerous. Several of todays herbicides + pesticides will probably join this list in the future.

49

Walton R. Smith
FOREST PRODUCTS CONSULTANT
221 Huckleberry Creek Road
FRANKLIN, NORTH CAROLINA 28734

July 19, 1988

USDA, Forest Service
1720 Peachtree Road, NW
Atlanta, GA 30367

Gentlemen,

This is a response to your EIS Draft on Vegetative Management in the Piedmont and Coastal Plain. I, along with about 900 others, responded to your first request for input. There is considerable doubt that our input received much consideration, and it is dubious that this follow-up will have much effect on the final document or your plans.

In the first place, you did not summarize quantitatively the responses to the issues that you received. I realize that this is not a voting process, but most of us are very much interested in knowing exactly how the rest of the people view your plans for vegetatiove management. You indicate that the public is concerned with the after effects of herbicides but you do not tell us how much they are concerned or how many of them are concerned. A few of us who have had experience with these poisons have great concerns. For instance, I received literature just in the past few days on Arsenal, one of the herbicides that you list as being acceptable. 1

From this literature is the following:

"IMPORTANT

DO NOT use on food or feed crops. Keep from contact with fertilizers, insecticides, fungicides, and seeds. DO NOT apply or drain or flush equipment on or near desirable trees or on other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. DO NOT side trim desirable vegetation with this product. Prevent drift of spray to desirable plants. DO NOT USE in California. Clean application equipment after using this product by thoroughly flushing with water."

This kind of labeling with many additional precautionary instructions, and usually a "use at your own risk" statement by the Chemical Company is found on practically every herbicide, pesticide and fungicide that are still on the market. Many of them are removed from the market each year after enough time has elapsed to discover their potential damage to plants, animals and humans. And to think that you used the Chemical Companies as one of your primary sources of information on safety. 2

YOUR EIS DRAFT FAILS TO ESTABLISH THE REAL NEED FOR THE AMOUNT OF VEGETATIVE CONTROL THAT YOU PROPOSE.

If you will really examine the data carefully and release it for public information, I think that you will find that the great need that you show for this vast amount of vegetative control is to establish a monoculture of our forests on short rotations. This may be a valid objective of a Pulp and Paper Company, but is it really a valid objective for a National Forest? If we go back to the laws establishing the National Forests and more recent legislation, I do not believe that we would end up with this kind of forestry. 3

Response to Comments in Letter No. 49

From: Walton R. Smith

Comment No.	Response
1	In order to avoid "vote counting" the only quantitative analysis done on responses to issues is to show numbers of responses by State, by respondent category, page VI-3 of the Draft EIS. Pages I-4 through I-7 of the Draft EIS discuss issues in a way that gives a sense of people's emotions by using appropriate adjectives such as "most, deep, strong, or general." Page I-7, part F, of the Draft EIS clearly identifies herbicides and their effects as the principal issues. Though there is no statistical analysis of numbers of comments in each issue area, coding sheets from content analysis are a part of the process records.
2	Most of the acute and chronic toxicity data has been derived from EPA validated data, much of which is developed by the chemical companies during the registration process. However, modeling to evaluate the environmental impacts of the chemicals was done by Labat-Anderson Inc. under contract to the U. S. Forest Service.
3	The EIS discusses methods and tools available for use, what intensity and frequency of treatments are used, and what management requirements and mitigation measures are applied to accomplish vegetation management objectives detailed in the forest plans of Coastal Plain/ Piedmont forests. The purpose and need for vegetation management is discussed on pages I-1 and 2 of the Draft EIS. Environmental conditions at the project level will determine the specific need for, and amount of, vegetation management to be done. Vegetation management decisions include the option of doing nothing (no action or no interference). Additional discussions regarding this have been added to the Final EIS, pages I-1 through I-4.

4 There is an intimation that the use of herbicides for vegetative control is favored for economic reasons. Your own cost figures show little difference between chain saws and other hand tools versus herbicides-- and the dollars go to laborers who need work rather than to the Chemical Companies. Certainly, manual cutting of vegetation is much more selective and poses no hazards to plants, animals or humans. Why do you discard manual cutting in favor of herbicides?

For about 50 years the National Forests were managed without herbicides by using selective harvesting and manual timber stand improvement, even before we had chain saws. The protection of our soils, water, flora, and fauna demand that we give priority to methods of control that pose no danger.

5 The use of fire as a tool in the silviculture of coniferous forests has been increasing as it has been proven that fire can reduce fuel that promotes damaging wildfires, for the habitat and food establishment for certain game species, especially quail, and for controlling undesirable competing vegetation. Its use in the bottomland hardwoods in the Coastal Plain and bottomland and upland hardwoods of the Piedmont, has not been so well researched. Certainly, the use of fire in hardwoods can be expected to do more damage to the soil structure than in the sandy Coastal Plain, and soil temperatures under hot fires can be very detrimental, causing loss of fauna, and even severe erosion of steep slopes on many soils. In addition to local damages from fire, we must recognize the air pollution created and the hazards that go with such pollution. Fire is a tool to be used very cautiously, BUT THIS CHOSEN ALTERNATIVE CALLS FOR GREATLY INCREASED USE OF FIRE." There should be tight controls on the use of fire.

6 The vegetative control measures recommended in the chosen alternative give no consideration to the quality of timber that will be developed as a result of their use. We are learning that vegetative measures that create more sprout timber rather than seedlings, can lead to lower quality timber in the way of crooked butts (sometimes called pistol butts), perhaps more abnormal juvenile wood because of very rapid fast growth for a few years, and a preponderance of grape vines, kudzu, honeysuckle, and other plants that can degrade sawtimber. These are factors that must be weighed against in choosing alternatives. However, it does not seem that enough consideration was given to timber quality even to include forest products specialists on the inter-disciplinary team.

CONCLUSION

7 Even though it appears that a great amount of effort has been put into this EIS Draft, it does not appear that full consideration has been given to the concerns of the many people who gave original comments. The document with the voluminous appendix is much too much for the average person to cope with. The entire question needs a complete review and analysis by an impartial group of scientists representing the many disciplines involved.

Walter R. Smith
Forest Products Consultant

4 While the cost of herbicide vs. chain saw work is very similar, the risk to workers of accident during vegetation management is very different. Discussion of accidents presented in the Draft chapter IV (pages IV-27 through IV-30) shows chain saw use to have a much higher accident frequency than herbicide application.

5 Studies on various soil and vegetation types show that effects on soil structure and biota depend more on fire severity and frequency than on soil texture or forest type. Severe slash burns and 1-2 year underburns may impair soil structure and biotic activity (appendix B, pages 4-6). Severe slash burns may cause serious erosion on steep, erodible sites. Alternative G increases prescribed fire by only 1 percent over present levels and produces only 1 percent more smoke (table II-8, pages II-64-65 in the Draft EIS). It does not allow severe slash burns or underburns more often than every 3 years except for threatened and endangered species habitat maintenance (page II-9 of the Draft EIS).

6 The Forest Service's commercial timber lands in the Coastal Plain/Piedmont are managed to sustain a yield of high quality forest resources while protecting the environment and providing for other desired uses of the forests. Management decisions that consider the biological requirements of the tree species being managed, along with such programs as the Regional Tree Improvement Program, improve both the quality and productivity of the forests. Each of the vegetation management methods available in the alternatives are extensively discussed in chapter IV of the Draft EIS. Effects on quality are discussed in the sections on injury and mortality and plant susceptibility. Fires effect on the quality of oak sprouts, for example, are found on page IV-33 of the Draft EIS. Also, mitigation measures such as numbers 1 and 2 on page II-43 and number 12 on page II-45 of the Draft EIS are specifically designed to protect and, in many cases, enhance the quality of timber stands.

It is true that no forest products specialist was included as a full-time interdisciplinary team member; however, this document was reviewed both within the Forest Service and outside of the Forest Service by specialists from other agencies, universities, and organizations concerned with the production of quality forest products.

7 Good communications is a top priority. While many reviewers commented that this very complex technical subject has been handled very well, some may still find it overly complex. The summaries on pages iii through xvi of the Draft EIS attempt to address this problem.

50

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns

1 Comments on Scientific Analysis: Good, more than adequate, but too involved. Should be condensed and simplified.

We can get too bogged down in form rather than
Why? getting on with the work at hand. We may never know the exact results of certain chemicals but we can already see disastrous results in our air soil and water. Our goal should be to keep everything as natural and unpolluted as possible.

2 Comments on Alternatives: I don't care for A + F but think some aspects of B, C and D are very good.

Why? They offer methods that are more natural and stay away from too many herbicides. I too prefer alternative G which is good but I feel there should be some modifications which I have set forth on the attached pages.

3 Other: I feel a new alternative should be written incorporating into alternative G some of the more moderate suggestions set forth in A, B and C.

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Natalie J. Hollingsworth
Name: First MI Last
450 S. Ridge St.
Street
Southern Pines, N.C. 28387
City State Zip Code

Response to Comments in Letter No. 50

From: Natalie J. Hollingsworth

Comment No.	Response
1	The interdisciplinary team views its writing assignment as equal in importance to the analysis. Good communications is a top priority. While many reviewers commented that this very complex technical subject has been handled very well, some may still find it overly complex. The summaries on pages iii through xvi of the Draft EIS attempt to address this problem.
2	The commenter's preference regarding the alternatives was included in the content analysis of all comments received. Alternatives B, C, and D may be more natural or seem more favorable in some respects. They also have effects which are considered unfavorable by other commenters. The effects of all alternatives are summarized in part H of chapter II.
3	As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

50

450 S. Ridge St.
Southern Pines, N. C. 28387

July 21, 1988

U. S. Dept. of Agriculture
Forest Service
Suite 951 - 1720 Peachtree Road, NW
Atlanta, Ga. 20267-9102

Gentlemen:

Alternative G is a good choice but needs some modifications particularly in the use of herbicides, which I find much too prominent in this Alternative, and throughout the entire volume.

4 Aerial application should be a last resort. I realize there may be times when it is necessary, but cut it to a bare minimum or, in my view, eliminate it altogether. Use other means of spraying, but also keep that to a bare minimum. Too much spraying can by itself cause adverse results such as burning of plants, stunted growth, soil and water contamination and damage to wildlife and their habitat. Our enviroment is now overburdened with chemicals and in order to save our water and air quality we must use other methods of control.

I am setting forth below some other suggestions after going over Alternative G and checking over this volume:

5 Low intensity burns, under burns, light to moderate, should be the preferred methods used to retain an effective ground cover, prevent wildfires and allow regeneration of plant and tree growth and disturb the forest habitat as little as possible.

6 Minimal use of mechanical equipment and then preferably the smaller types. Do not put too much enphasis on intense clearing. Use as much manual treatment as possible. There should be many areas where nothing should be disturbed.

7 Market out put of timber should be drastically curtailed and a vigerous replanting program instituted. We need strong forests to clean and cool our air, hold ground water and very specifically help control the pattern of rain fall . Our forests should be planted at top speed.

8 I also feel after going over this volume that perhaps we are making Vegetation Management a bit too complicated. By that I mean we should stick to the simpler methods and do as little digging and disturbing as possible - just enough to give nature a chance to regenerate itself. Our first and formost task should be to restore our forests and lands as simply and quickly as possible.

(Continuation of Forest Service response)

4 Mitigation measure number 5 (pages IV-48 and IV-49 of the Draft EIS) is designed to place strong emphasis on the use of selective herbicide application tools. While not restricting broadcast application methods as severely as suggested in this comment, they are low priority for use. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. See also response to comment 3 of this letter.

5 We agree. Severe burns (evaluated in alternatives F and H) are not permitted in the preferred alternative.

6 Alternative G reduces acres treated mechanically by 46 percent from present levels (alternative F). In addition, the high disturbance tools (raking, heavy disking) are eliminated (pages II-7-9 of the Draft EIS).

7 Harvest and regeneration requirements are addressed in Forest Land and Resource Management Plans and other environmental documents. See response to comments in Letter No. 14, Comment No. 1.

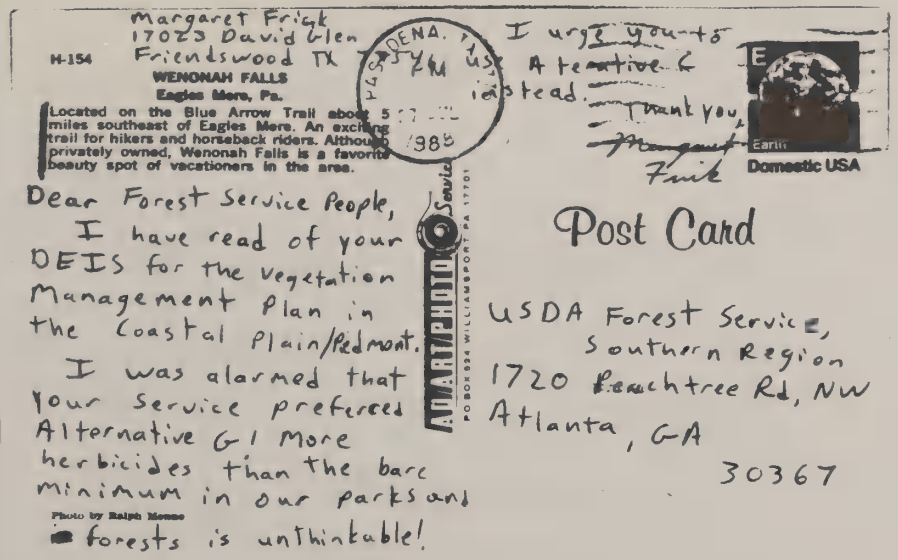
8 Due to the wide variety of sites, plant and animal species, as well as laws, regulations, management requirements, and goals and objectives, vegetation management decision making is a very complex process. We use site specific analysis (mitigation measure number 1 on page II-35 of the Draft EIS) to consider all these factors in order to determine the appropriate techniques and intensity of application method for projects.

Time is of the essence because our enviroment is now over-burdened almost to the point of no return. When nature goes, man is next in line.

Very truly yours,

Natalie J. Hollingsworth

Natalie J. Hollingsworth



Margaret Frick
17023 David Glen
Friendswood TX
M-154
WENONAH FALLS
Eagles Mere, Pa.
Located on the Blue Arrow Trail about 5 miles southeast of Eagles Mere. An exciting trail for hikers and horseback riders. Although privately owned, Wenonah Falls is a favorite beauty spot of vacationers in the area.
Photo by Ralph Mesaa
Domestic USA
Earth
Post Card
Dear Forest Service People,
I have read of your DEIS for the Vegetation Management Plan in the Coastal Plain/Piedmont.
I was alarmed that your Service prefereed Alternative G1 more herbicides than the bare minimum in our parks and forests is unthinkable!
1
I urge you to A tentative G instead.
Thank you,
Margaret Frick
USDA Forest Service,
Southern Region
1720 Peachtree Rd, NW
Atlanta, GA
30367

Response to Comments in Letter No. 51

From: Margaret Frick

Comment No.	Response
1	See response to comments in Letter No. 71, Comment No. 1; and Letter No. 10, Comment No. 1. Also as a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

52

R#1, Box 7141
Whitley City, Ky. 42653
25 July 1988

Mr. Steve McCorquodale, Team Leader
Vegetation Management, EIS Team
USDA Forest Service
1720 Peachtree Rd. N. W.
Atlanta, Ga. 30367

Refer to: DEIS Vegetation Management in Coastal Plain/Piedmont
Volumes I and II.

Dear Mr. McCorquodale,

First of all let me thank you for the opportunity to respond to the Draft Environmental Impact Statement for Vegetation Management on National Forests and National Grasslands of the Coastal Plain/Piedmont area. While the Daniel Boone National Forest is a part of the Southern Region's Appalachian Mountains (Area I), and the Draft EIS which is being reviewed is on Coastal Plains and Piedmont (Area 3), it can be safely said, that the majority of the basic material used for the Area 3 EIS will affect your decisions in preparing the EIS for Area I.

But first let me comment about the study area. It is interesting to note that A rea I designates most of Kentucky and Tennessee, with parts of Alabama, Georgia, North Carolina and Virginia being included. We believe that you should have also included portions
1 of Ohio, Pennsylvania, West Virginia and South Carolina which are historically within that area known as "Appalachia". Within all these additonal states one would find vegetation similar to that which you call Area I. If the Southern Region has problems concerning vegetation management, then so does the Eastern Region. Generally speaking, in the broad area known as Appalachia, which encompasses a section of the Eastern Region and the Southern Region we find some mixed pine forests, but predominatly hardwood forests where the foot hills first begin as one travels from the coastal plains. However, when we look at your management areas, for example, the Southern Region intrudes into that section known as Appalachia and the Eastern Region does likewise. Also, an EIS for the Appalachian Mountains should have included those National Forests in the Eastern Region, that are in mountainous sections.

For a long time this writer has felt that your regional boundary between the Southern Region and the Eastern Region is located too far North. The dividing line should be the 36° 30' parrallel of latitude (Ky. Tenn. and Va. N. C. boundaries). There are many reasons for this, the main one being that climax hardwood forests once existed primarily throughout Appalachia. Soils are similar. It's people's historical origins conform to forest locations. For example, if an area has much the same species of trees then for management purposes administrators should organize so as to simplify their task. These managers can then become specialists in hardwood management techniques. At the present with Daniel Boone,

Response to Comments in Letter No. 52

From: Robert Stevens

Comment No.	Response
1	Forest Service regional administrative boundaries are not an issue within the scope of this EIS.

Redbird, Jefferson etc. being in the Southern Region, their management objectives are influenced by the Coastal Plains pine management techniques. As the National forests above 36° 30' are completly different in the species found in the Southern Coastal Area, again, a vegetation management study should have included the Eastern Region. If you include Daniel Boone in the Appalachian Mountain EIS vegetation study then you are agreeing in principle that this Area should be in the Eastern Region, with the rest of the mountainous National Forests.

2 Again, as I have reiterated many times, your study deals with "Issues" when, in my opinion it should deal with "species of vegetation" which you want to control. For example, if you are studying the over population of humans on this planet, you would be studying birth control techniques that would limit population explosion. Of course issues involving such studies would surface, but these issues would not be the basis for the study. Issues arise because of over population-in this case vegetation-which you are trying to limit by favoring certain species. Any time you change the balance of nature in our environment you affect all other forms of life in that environment. But it seems that the Forest Service is determined to meddle, using all the latest technology, and they have drafted an EIS that will justify their actions, giving them the necessary grounds and authority to proceed. So let's look at what you've said and make the best of it.

Now, let us go to Volume I, "Summary and Introduction". You begin almost immediately by attempting to brainwash the reader, by stating that "Alternative "G" is the preferred alternative". Then to make
3 sure that we understand, you repeat it many-at least 9 times in the introduction and the first two chapters. This summary would have been better received if the reader were permitted to study chapters I, II, III, and IV, along with Volume II's Appendices, and finally a summary would have come in logical sequence to show how and why you decided on Alternative "G". More about this later.

On page I-7, para. F, the team admits that, "This EIS analyzes several methods of vegetation management, but herbicide use is a focal point". In other words herbicide use is the main reason for preparing this EIS, and when it is finally approved by the admin-
4 istration officials that desire to use more chemicals in the environmnet, it will mandate their actions, with the standard phrase from the date of approval of the EIS being "It's approved by the EIS" In other words, all the other management methods for vegetation control are "out of focus". These other controls are standard actions which do not involve so many controversial issues, but we must look at them alongside herbicide use in order to paint the big picture and justify their use.

In Chapter II involving Alternatives page II-2, which describes how much vegetation management occurs, you state, "Frequencies for site preparation and timber stand improvement are not shown
5 because they are done on established cycles and usually occur only once per stand rotation". My comment is: "There are areas within the Daniel Boone where the same stand has been treated several times in order to bring about "Pine Release". While it is true site preparation may occur only once there is repeated use of

(Continuation of Forest Service response)

2 The document identifies public issues and management concerns, it does not prejudice the outcome of the analysis. Analysis done is on methods and tools used to manage vegetation as they affect environmental elements, including plants and plant communities.

The processes for conducting environmental analyses and preparing environmental documents are contained in the Regulations of the Council on Environmental Quality for Implementing the National Environmental Policy Act (40 CFR Parts 1500-1508). While these processes are flexible, part 1501.7 gives a fairly detailed explanation of issues.

3 We thought it best to display the preferred alternative up front in the summary. Regulations of the Council on Environmental Quality for implementing the National Environmental Policy Act at section 1502.14 allow for the identification of a preferred alternative, if one exists, in the draft statement. After careful analysis by the interdisciplinary team and by management, a preferred alternative existed and was disclosed.

4 An EIS is not a justification statement; it is a disclosure of results of scientific analysis to allow for informed decisions. This EIS is about vegetation management, not just herbicides. The statement on page I-7 means that herbicide use is a focal point of controversy. If the analysis evaluates the possibility of not using herbicides (alternative D), it must necessarily evaluate the effects of methods that would replace herbicide use. Also, as stated in mitigation measure number 1 on page II-35 of the Draft EIS, vegetation management projects will have site-specific analysis that will examine and evaluate a reasonable range of alternative methods, including the use of methods which do not involve herbicides.

5 Depending upon specific site conditions or tool effectiveness, it is possible that timber stand improvement treatments may need to be repeated; however, this is not a usual occurrence. Not all stands are scheduled to receive a release treatment; but for those that are, when treatment methods are well matched to site conditions, treatments usually occur only once per stand rotation. At any rate, such treatments are not done on regular, planned cycles like the other treatments are.

herbicides to control broadleaf (hardwoods) for several years thereafter.

Again ■■ ■■ start our assessment of your Alternatives II-1 through II-11, it was disappointing to find no reference to Intergrated Pest Management in Forestry. I know what you will say, "This is not within the scope of this EIS". However, let's look at it. For example, it is possible to use various cultural and silvicultural practices in the forests to eliminate pests. Isn't it possible to use a double-barrelled approach, if you must use chemicals, and eliminate pests and control vegetation at the same time? When you evaluate vegetation control, it should also be taken into consideration that these chemicals-of the same toxic nature ■■ herbicides, which actually have the same nomenclature as pesticides-will again be used if pests invade the forest. This could amount to an excess of chemicals of a hazardous nature, simply because an emergency exists that has been brought about by other management practices. If excess woody substances are "windrowed" and left to rot then you are providing a habitat for forest pests to breed and multiply. If you are going to treat an area, then it should be a one-time affair, and a study should be done in the beginning for a stand for actions that could be taken to kill pests and control vegetation. There is nothing about this in your EIS. The fact that additional chemicals may be called for at a later date, will further disrupt the balance of nature. Let me give you an example and a recommendation. It is the practice in the Daniel Boone to clear-cut large acreages, push the "woody excesses"-I believe you call it slash-into the hollows or in rows along the ridges and slopes, transplant your pines and then treat chemically for "Pine Release". If this material can not be salvaged and I believe it can be, wouldn't it be better to burn it initially during site preparation? You would be using less chemicals and giving the new forest a better start. But even before either of these possible actions, an attempt should be made to market the cellulose now wasted. DuPont, Celanese and others would welcome the opportunity to use these materials, if only our government would provide leadership. Let me show you where millions of board feet of hardwoods have been sacrificed, so that your program of "Pine Release" and hazardous chemical use can be continued.

6

7

8

For the section on Methods and Tools, pages II-11 through II-21, we have no recommendations, however, ■■ believe that beginning on Page II-22, Herbicide Methods and Herbicide characteristics (4-a) does not agree with the chemicals listed in Volume II's Risk Assessment. For example, you say there are 11 herbicides used in the Southern Region. Actually in Appendix A, you refer to 14. The three additional additives you refer to in the Appendix-Volume II are: Kerosene, Diesel Oil and Limonene. This, I believe, should be clarified so that both volumes read the same.

9

We commend you on your efforts to tell the truth about herbicides. But you've got a bear, maybe Smokey Bear's future, by the tail and you can't let go. He's all splotched and tarnished with the herbicide issue and youre looking for ways to make him healthy that are affecting not only this poor old bear but everybody else that lives near him. You say and let me quote from page II-22, "Prior to operational use, efficiacy of the product is evaluated through research and administrative studies on restricted areas. If the product is

6 & 7 Pest outbreaks are usually treated on an emergency basis and can seldom be planned to coincide with vegetation management treatments. Additionally, windrows or slash piles are not breeding places for pests likely to cause serious damage to living, healthy trees. Pests bred in dead material are primarily decomposers (fungi and bacteria) and scavengers (insects). See response to comments in Letter No. 279, Comment No. 1; and Letter No. 295, Comment No. 1 regarding IPM.

8 Each forest has established pine and/or hardwood sawtimber and poletimber utilization standards for timber sales. Additionally, many areas are opened for public firewood gathering to further utilize tops, limbs, and other unmerchantable sized material in regeneration areas.

In many cases, site preparation treatments do involve the use of prescribed fire for remaining material, but this is dependent on site characteristics, season, and weather conditions. Even when residual material is burned, however, this does not preclude the need for release with an herbicide or by any other available method. Variables such as the inheremt productivity of the site and available seed sources onsite or adjacent to the site influence amounts of competitive vegetation.

9 Throughout the document we discuss 14 chemicals; 11 are herbicides and 3 are additives used in formulating the herbicides for use in the field.

effective, an amendment is prepared which includes a toxicological background statement, a risk assessment, and analysis of it's environmental behavior. Once testing, documentation, and public disclosure of finding are complete, field personnel are notified of the availability of the new herbicide or tool". Is this what you've done in this EIS ? We think not!

10

For example, lets take 2,4-D one of the most controversial herbicides. On pages 3-24 to 3-36, you reiterate that many studies have been made, and begin by saying, "There are no conclusive data demonstrating that 2,4-D is carcinogenic... However, there is also general agreement that none of these studies were adequate". Some items quoted:

11

11a 1. At least one scientist, Dr. M. Rucber, disputes the conclusion that a carcinogenic effect of 2,4-D has not been shown.

11b 2. EPA...reviewed a long term study...findings indicate an increased incidence of brain tumors in rats. The study is not yet complete and will go on for months.

11c 3. Hardell and Sandstrom, 1979...studies in Sweden found a significant increase in relative risk of soft-tissue Carcinomas, Hodgkins disease and Non-Hodgkins Lymphoma. These results were not supported by Wiklund and Holm.

11d 4. Hoar's (1986 epidemiological study in Kansas on lymphoma and soft-tissue sarcomas (STA) found no association for Non-Hodgkins Lymphoma and exposure to 2,4-D. Exposure for more than 20 days brought about a 6-fold increase. The researchers discredit this study because it was based on next of kin's recall of exposure status. You state, "It needs further examination". To further confuse the issue a review of the Hoar study establishes an hypothesis of relationship of exposure to 2,4-D, with some small proportion of cases of Non-Hodgkins Lymphoma (NHL). They say it needs to be tested further.

11e 5. The Canadian Centre for Toxicology (1987) reported no overall increased risk...with occupational exposure to phenoxy herbicides between soft-tisse sarcomas or Non-Hodgkins Lymphoma (NHL). Yet they turn right around and say, "There was an elevated risk of NHL for men who had been farmers, forestry and herbicide applicators and those potentially exposed to phenoxy herbicides for 15 years or more during the period prior to 15 years before cancer diagnosis. They spell out "phenoxy herbicides" which 2,4-D is one, but the study is discredited because exposure to 2,4-D was not singled out.

11f 6. Another study by the Canadian Centre for Toxicology (1987) shows about the same as that shown in item 5 above, with the study being redone.

7. Two recent case-control studies in New Zealand were negative.

8. The same as 7 above is true for a study by Green on forestry workers.

9. Again, after a review of 2,4-D epidemiology studies, the Canadian Centre for Toxicology (1987) concluded there is limited evidence of carcinogenicity in man from exposure to phenoxy herbicides, and there is in-

10 The discussion quoted was originally part of the paragraph immediately preceding it on page II-22 of the draft EIS and referred specifically to new herbicides or tools which may be of legitimate use to Region 8's vegetation management programs. This EIS presents the data required for use or restriction of tools currently available to us.

11 2,4-D is indeed a controversial chemical at the present time. However, consistent with the remainder of the EIS, the scientific record must be the basis for any discussion about 2,4-D.

11a Scientific disagreement is not proof of a fact. Dr. Rueber's contentions are documented, discussed, and evaluated along with all of the other available data. His opinion was found insufficient in light of the weight of scientific evidence.

11b EPA review does not constitute EPA validation. When the study is complete and the statistics are evaluated for the full study, this data will be reevaluated in the proper scientific light.

11c These statements reflect conflicting scientific opinion from the same data base that is unresolved at the present time.

11d The Hoar study is flawed. In the Federal Register of March 23, 1988 (Vol. 53, page 9591) EPA concluded the following:

> "A number of critical problem areas, common to many epidemiology studies, have been noted by reviewers. Some of the key areas of concern are the lack of appropriate controls, exposure to multiple chemicals, and insufficient information about actual exposure to 2,4-D and other pesticides."

EPA's current position is that this study is a good basis on which to formulate a hypothetical relationship between non-Hodgkins lymphoma and phenoxy herbicides, but the study does not establish that relationship conclusively.

11e Internal problems with the study are difficult to reconcile. As the quote from the EPA opinion indicates, the conclusion that "phenoxy herbicide" connection equals a 2,4-D connection is unacceptable.

11f "Redone" study is incomplete and incomplete data is not the basis for scientific conclusions.

adequate evidence to classify 2,4-D as a carcinogen.

You then went on to do a cancer potency analysis for 2,4-D based on tumor formation in rats. You have proven with as little as .00503 (mg/kg/per day), there is an increased possibility of
12 tumors. EPA also agrees. There can be no question that EPA's analysis of the "Chlorophenoxy Compounds" Chapter VI of the "Recognition and Management of Pesticide Poisonings", considers 2,4-D and all the other phenoxys in their "Toxicology" as potentially dangerous.

Now let me refer you to some of the literature you did not show in your evaluation process.

13 1. As early as 1969, Bionetics Research Laboratories, Inc. published, "Evaluation of the Carcinogenic, teratogenic, and mutagenic activity of selected pesticides and industrial chemicals". Vol. III "Evaluation of the teratogenic activity of selected pesticides and Industrial Chemicals in mice and rats" was made under contract with the National Cancer Institute. This material was further evaluated in Mrak, Emil, et al U. S. Dept. of Health, Education and Welfare. The Mrak Commission placed 2,4-D in a classification to be, "immediately restricted to present risk of human exposure (page 285). Subsequent studies by the National Institute of Environmental Health Sciences, U.S.D.A, the Canadian Food and Drug Directorate and Dow Chemical Co. showed that 2,4-D, its various formulations and one breakdown product (which we assume to be 2,4-dichlorophenol) which is an even stronger cancer promoter than 2,4-D and is a weak carcinogen-cancer initiator-as well, and produced teratogenic effects in mice, rats and hamsters. Some of the common abnormalities observed were cleft palate, clubfoot, no eyes, no lower jaw, distorted missing or extra ribs, unformed breast bone, brain mislocation, enlargment of skull and various hemorrhages.

14 2. There are other cancer studies that have been done on 2,4-D which you fail to mention. As per Dr. Ruth Shearer, a molecular geneticist and consultant in genetic toxicology from Issaquah, Washington, there were two done in the U.S. which used too few rats and mice with too low a dosage and too short a time. However, both of these tests did give statistically significant positive results. A third test done in Russia-as an assay to induce all stages of cancer was also negative. However, they also ran a test for cancer promotion, to see if 2,4-D would stimulate premalignat cells-that had already been initiated by another carcinogen into fully malignant cancer cells. This test was strongly positive.

Also, in order to set the record straight, as already shown, you say at least one scientist Dr. M. Rueber of the National Cancer Institute disputes the conclusion that a carcinogenic effect of 2,4-D has not been shown. He had been asked by a Senate subcommittee to renew the test data for 2,4-D and picloram submitted by
15 Dow Chemical in support of registration. He found that the raw

12 The statement quoted is not a probability statement. Probabilities are projected in chapter 5 (not 3) of the risk assessment and include probable doses and several other factors. All that is said here is that the cancer potency of 2,4-D is increased by .00503 for every 1 mg/kg/day to which the subject is chronically exposed.

While considered "...potentially dangerous..." by many, the EPA has recently clarified its position on the carcinogenicity data currently available (Federal Register 53:9590; Mar. 23, 1988):

> "This document announces EPA's proposed decision not to initiate a Special Review of 2,4-D, 2,4-DB and 2,4-DP based on carcinogenicity. The Agency's decision is based on a concensus of opinion from EPA scientists, national experts on epidemiology, and the FIPRA Scientific Advisory Panel, that existing epidemiological data are inadequate to assess the carcinogenic potential of 2,4-D. In addition, the Agency has concluded that existing laboratory data provide insufficient evidence of carcinogenicity. Therefore EPA has concluded that a Special Review is not appropriate at this time."

This was unavailable at the time of printing of the draft EIS, but provides a strong basis for the position we have taken.

13 The discussion of teratogenic potential of 2,4-D has been clarified.

14 The Shearer test was not validated by EPA; based on too few replicates and too short a time of exposure. It was considered but only as collateral information since valid, scientific conclusions cannot be drawn from an invalid test. The Russian test is suggestive but it has not been validated. It leads to several questions, but can not be used to answer them.

15 EPA and various science advisory panels now disagree with Dr. Rueber's conclusions (see response to your comment 11a). Published EPA statements and analysis in this EIS do not support them.

data on 2,4-D did not support Dow's conclusions that the chemical could not cause cancer, and that no raw data existed to support Dow's claim that picloram did not pose a similar risk.

Based on the foregoing, it is this writer's interpretation that 2,4-D is definitely teratogenic, and that the long term effects of its use are carcinogenic, especially its breakdown products.

The analysis for 2,4-DPis much the same. Any phenoxy chemical is dangerous. So now let us summarize.

16a
16b
16c

1. Some studies show evidence of carcinogenicity.
2. Several studies are still on going.
3. Our own study has proven that Non-Hodgkins Lymphoma and soft connective tissue cancers are the direct result of spray site applications of 2,4-D or other phenoxy compounds etc. used on highway right-of-ways and in the Daniel Boone National Forest.

17 However in view of all this evidence on the phenoxy compounds, you go ahead in complete disregard of your own language on Herbicides (page II-22, Herbicides characteristics, 4-a) and publish in Table II-1, a guide, saying that Class A substances pose no risk that would require mitigation, or can be used as a Class B substance, which poses a threat to humans or wildlife. In view of your review of the research literature, how can you logically arrive at the conclusion that it is safe to use 2,4-D or 2,4-DP. Using this EIS a Forest Ranger with the responsibility of controlling vegetation will point to your table as authority for the use of 2,4-D, with or without mitigation, and the people who live all around these treated areas are again exposed to carcinogens.

This same scenario can be constructed for some of the other chemicals you will be using. Again, I'll spare you the details.

Still another area which has not been taken into consideration is the Biomagnification potential for chemicals to remain and build through the food chain or on treated sites, until such a time man feels their hazardous effects. Your studies deal with rats,
18 usually for a controlled period of time. Even these short term studies have shown positively that cancer is the end result. Let me ask you whether the dosage of a particular known carcinogen is oral or dermal,"What proportion of a rat's anatomy relating to size and weight of the speciman is affected in relation to the anatomy of humans?" Isn't it true that humans, with a much longer life span have a greater potential to become victims of chemical misuse because of the repetition of exposures than laboratory mice who are made to develop tumors, etc.? They live for a short time and die.

In promulgating your EIS you say on page II-32, E. Herbicide use and classification that you assume typical application rates and
19 typical exposures. It also assumes that all protective measures are in place. Again let me ask you, "How are you going to guarantee that an applicator's exposure does not exceed a period of

(Continuation of Forest Service response)

16a Our own modeling has shown a greater than a 1 in a million risk from 2,4-DP broadcast foliar application. It was misplaced in table II-1 of the draft EIS (page II-33) but has been properly placed in class B in the Final EIS.

16b True -- and these must be considered as incomplete data from which no valid scientific conclusions can be drawn at the present time.

16c Flaws similar to those in the NCI/Kansas study are noted in the epidemiological study to which you refer. See response to your Comment No. 11d.

17 The actual statement is that herbicides in Class A: "Do not pose risk which would require mitigation **in addition to those stated in Chapter II (section E.2.c).**" [emphasis added]. All application methods documented for 2,4-D, and 2,4-DP fall into Class B "... **which requires additional mitigation ...**" Further, class B chemicals can be used only when project objectives can not be met with a class A herbicide, and then only when adverse effects are mitigated to an acceptable level (mitigation measure number 6, page II-49 of the draft EIS).

18 Biomagnification is impossible without bioaccumulation. The sections dealing with synergism, bioaccumulation, and cumulative effects in the human health and wildlife sections (draft EIS Appendix A, pages 5-46 to 5-51 and 8-2) suggest that, based on current data, half-life and elimination rates will prevent bioaccumulation.

19 The EIS is incorporated into the pesticide applicator certification process just so that it doesn't become a shelf document. In addition, monitoring has been mandated (pages II-48 to II-54 of the Draft EIS) to ensure the use and effectiveness of mitigation measures.

time which brings about added risk?" Also, "How are you going to make sure that protective measures are being taken?" Our experience has been that many human errors or just plain disregard of label instructions do not conform to your assumptions. We could cite many examples. If you want specific incidents, we'll be glad to show you.

What has been said about 2,4-D and 2,4-DP can also be said about the other chemicals shown in Table II-1, page II-33. If you follow label instructions and use this EIS as a guide, this writer sees problems with application of any herbicide on your list.
20 Therefore, I must ask is it really intended as a guide, or is it just a way to increase herbicide use and provide for restitution of aerial treatment techniques.

Now let us refer to Chapter II-39, C-9 Soil and water. "Channel stability of perennial and intermittent streams is protected by retaining all woody understory vegetation within five feet of the bank and by keeping slash out of the stream." My comment: Your rhetoric is good, however in the Daniel Boone National Forest because of gradient of slopes that end abruptly at small st-
21 reams banks, all vegetation should be retained at least the width of the crown of the largest trees growing along the streams course. The practice here, in the past has been to cut right across the hollows, and push the debri into the low places. In my opinion, this should read more like 100 feet or 50 feet on each side of the watercourse, especially for an intermittent stream.

Also, under Cultural Resource d-10, same page, again your intentions are good. However, you have timber sales to contractors, who are interested only in removing the saw timber. In the past these contractors have completely disregarded little family cemeteries that are found almost everywhere along the ridges in our county. Some cemeteries have been bull-dozed over the hill, where logs were loaded. In others the monuments have been knocked down, and single graves just disappear. We are now in the process of locating these old burying grounds and a copy of our research will be given to the local ranger, so that future logging operations will perserve these old burying grounds and roads can be maintained to them as promised when the federal government bought the land in the 1930's. As of now you can't expect a ranger from some place in the south, east or elsewhere -and your administrators are never local people-to know about these historic resources. The first thing the Forest Service should do is make an inventory of all the historic and archaeological resources within a forest.
22 Your rhetoric is good, but the facts will not permit its successful implementation simply because your inventory is not complete.

Chapter II-43, 2-a, Prescribed fire-This is well written and logical. In "Mechanical method" 2-b 7 and 8 page II-47, I believe that windrowing and piling means problems for the forester in later years as a breeding ground for forest pests. These debri
23 piles should be burned as a part of site preparation prior to transplanting or regeneration of on-site species. Also, mechanical equipment operating within 30 feet of lakes and streams is too close.

20 Data in the EIS supports the position that 8 of the 11 evaluated herbicides, properly applied, can be used with minimal risk. This document discloses the scientific record and current knowledge about the various tools potentially usable in vegetation management. The data itself supports the position that herbicides can be used with minimal risk as long as mitigation measures (pages II-35 to II-54 of the Draft EIS) are enforced as we require.

21 This mitigation measure simply prevents obstruction of streamflow and retains root-binding strength of stream banks that might be eroded by streamflow. Filter strips to control sediment from upslope erosion are on pages II-44 and II-47 of the Draft EIS. See also response to your comment 23.

22 Each forest maintains cultural resource inventories. These inventories are updated periodically to include field survey information of areas scheduled to receive treatments. Mitigation measure number 10 on page II-39 of the Draft EIS requires a cultural resources inventory prior to ground-disturbing activities. See also, response to comments in Letter No. 16, Comment No. 2; and Letter No. 23, Comment No. 1.

23 Concerning pests, see Comment No. 6 and 8 of this letter. Mechanical equipment must stay at least 30 feet away from all lakes and perennial and intermittent streams (Draft EIS, page II-47). This is a minimum filter strip width for flat terrain. As slopes increase, the strip's minimum width must also increase. Mitigation measure 8 has been changed in the Final EIS (page-II-55) to show this width in feet to be 30 + 1.5 times percent slope.

Chapter II-53, C-27, Buffers-100 foot buffer is not enough in Appalachia and neither is a 300-foot buffer around private residences. Also, in addition, where a watershed has a "Public
24 Water Reservoir", there should be no treating of the vegetation in that watershed. There are lots of label violations for treatment of soils where runoff exists, but Forest Service Applicators seem to give this little regard. I'll spare you the details. If you want to see the evidence please contact me.

Regarding C-30 Spills II-54-As private individuals and state agencies, we are required to comply with SARA, Title III, Public Law 99-499, a part of the Superfund Amendments and Reauthorization Act of 1986. In this "Emergency Planning and Community Right
25 to Know" act, this writer believes that the departments of government, especially the federal government(the U. S. Forest Service), should require that each of their National Forest Managers adhere to this law, even though it has not been mandated that they do so. The SARA regulations concerning the use of pesticides and herbicides are basic to our survival and if local and state governments and independent corporations must comply with these regulations, then departments of the federal government who operates in our midst should, also. It should be required, a policy statement issued by the Chief, and compliance should be in writing using the same forms and procedures that we must follow. A statement should be made in this EIS that each National Forest is required to voluntarily adhere to Public Law 99-499 or SARA, until such time as you can study and issue a policy statement. Each state and local planning committee should include as one of its members a representative of the U. S. Forest Service, if the U. S. Forest Service is a part of that particular county and state. They should not be exempt simply because of their federal government status.

Now let us look at that part of Volume I that deals with:

Table II-3	Comparison of alternatives with issues.
Table II-4	Comparison of alternatives with tools.
Table II-5	Comparison of acres treated by alternative.
Table II-6	Comparison of method mix (% of acres treated) within alternatives.
Table II-7	Average treatment frequencies (years by alternative).
Table II-8	Comparison of environmental effects by alternative.
Table II-9	Effects of alternatives on socioeconomics.

You have made all these comparisons and in each of the categories
26 (Tables II-3 through Table II-9) very plainly shown that you prefer ALTERNATIVE G. Are you trying to tell us that Alternative G has won out statistically in all these comparisons?

Let me say first that I applaud you for doing all this research work, but when I look at the results of your research, I get a different answer. And if you will really look at these tables objectively you will too. What should have happened is the construction of one final table comparing all your tables. In other words a recapitulation in Table form. Let me with my limited experience take a shot at analyzing your tables and giving my preferred alternative based on the facts or on a weighted factor for

(Continuation of Forest Service response)

24 Data show that the 100-foot buffer provides excellent protection from herbicide contamination via drift and runoff. See response to comments in Letter No. 70, Comment No. 3 and pages IV-85 to IV-88 of the Draft EIS.

25 Region 8 of the Forest Service is currently in compliance with SARA, Title III. Please, however, do not assume that the herbicides evaluated in this EIS are "hazardous substances" under SARA legislation. Each State has its own listing of hazardous substances. The presence of a Forest Service representative on State or local planning committees is a decision made at the Forest level and is outside the scope of this EIS.

26 Tables II-3 through II-9 give a number of comparative measures for alternatives. Care should be exercised though in assuming that there can be a pure statistical analysis to determine a preference. The rationale for Forest Service preferences will be disclosed when a decision (selection) is made. This rationale will be quantitative and qualitative and is not likely to match any one individual's value set, but will rather incorporate comments received from hundreds of individuals.

each of the issues. In my opinion it would be most important to do this. You could establish a scale from 1 to 10 as numerical values. Such a system could be arrived at by asking our people to rate the issues ■■ to their importance and then using numbers ■■ weighted values, construct a Table of Recapitulation. This idea would be more statistically valid than a subjective summary.

My values in order of importance would go like this:

1. Balance of Resources	6. Plant & Animal Diversity
2. Health & Safety	7. Wildlife
3. Water Quality	8. Prescribed Fire
4. Soil Productivity	9. Herbicides
5. Cost Comparison	10. Aerial Application

Actually, I would have combined 9 and 10.

If you do this, then the things that are important to the nation and its people take on a new prespective. In other words, the things that are most important are the end-use values for people and the continued future use of our resources. How we do it become secondary and has less weight ■■ you decide which alternative to use. I could disagree with many of your statements. For example under Balance of Resources which you say preferred "G" "maintain market and non-market outputs", but "F" is same as "G", which says, "Maintain market and non-market outputs at current levels". As for "E" (manual methods & prescribed fire) you have taken all the attributes of two issues and made them an alternative, which means you are comparing issues and issues. Then you say, "non-market outputs same ■■ "F" which, "Favors market outputs". This was same as (F) present levels of treatment. Confusing, don't you agree.

Now lets look at Health & Safety. How may I ask, under present levels of treatment (F) are risks not minumized, high for manual, when under "G" preferred again you say, "number of exposed individuals increases, risk of individual declines". Actually, can you expose more individuals and have less accidents, etc. when according to
27 Table II-4 there is little difference between mechanical and manual. Are you comparing all alternatives to issues or are you as you say elsewhere comparing alternatives with the focus being on herbicides?

But even more important under Cost Comparison how can you choose (G) preferred and say that, "Cost lower than "F" unemployment unchanged". Your Table II-9-Effects on Socioeconomics gives as the cost per acre alternative "C" at $14.40 and "E" at $14.43, with employment being highest for "E". Here, also you say output (F) is slightly lower than current for "E" in Table II-9. If your looking at just the saw timber cut-maybe-but ■■ far as people are
28 concerned our weighed values places other things ahead of methodology in accomplishing your objectives. The balance of resources should be most important, for after all this is a national resource for the enjoyment of all our people and not just a source for lumber. It is true that enough saw timber should be harvested to pay expenses, but when the harvest of timber effects soil, water and air to the point that institution measures must be initiated to repair negligent damages, then youre losing sight of the need

27 Several mitigation measures proposed in Chapter II are not currently in place. Alternative F was evaluated as if no change is made in the present situation. The additional mitigations applied in analysis of alternatives B, C, D, E, and G improve the human health and safety picture for the individual.

28 Alternative G costs are $15.11 per acre, $8,366,000 total; both lower figures than alternative F's. Unemployment is not discussed. Employment of persons doing vegetation management of the affected lands is about the same for alternatives F and G. Outputs are both managed and unmanaged and are defined on page II-66 of the Draft EIS. The statement for alternative E in table II-9 refers to managed outputs.

52

for national forests. Many of the acres that have been clear-cut (with subsequent treatment of chemicals) is what old-timers would call "land fit for nothing but wildlife and recreation". It is land not suited for timber harvest, and it is from these lands that erosion, water quality and other environmental damages, exceed the value of the timber harvested. Is it worth the problems/issues that originate and have to be resolved? I think not!

Needless to say such subjective comparisons as you use-not having analytical statistical values-effect the reliability of your study. These subjective comparisons have little validity and are open to the team's interpretation, or as a matter of fact to anybody's interpretation. Any individual can compare to suit his objectives, just as I have done. If we want the best study possible, then we must place foremost our real long range objectives-clean air, water and productive soils-and couple that with the lowest cost investment for the most jobs for our people. If we do this then we must select Alternative "E". If your method reflected validity and reliability then I would agree with your findings-Alternative "G". As it is you have only the Team's interpretations, which may or may not reflect their bias depending on their objectives.

29 There are many reasons for this choice of Alternative "E" over "G". even if I use your subjective interpretations. For example, in your comparison of Environmental effects-water- "E" "Treatments produce 660 tons of sediment" as compared to "G", "Treatments produce 1,030 tons of sediment. The difference between the two alternatives in soil saved is 370 tons annually. I would agree that this is a negligible amount. But we must ask, "Where does that soil go? What will it cost the Corps of Engineers or some private owner downstream to remove it from the channels of our navigable streams? Will it cause land to be reclaimed as we are forced to do in our own Marsh Creek Watershed, costing millions of dollars? What will it cost to fertilize and rehabilitate the areas where nutrients have been carried away by water? How does it effect the wildlife on the land and in the streams where the silitation takes place?" My point is, if we can save 370 tons of soil by manually treating 33,500 acres by alternative "E" and lose 370 tons by using alternative "G", then for the future of our nation we should be using alternative "E". Also, if you treat 49,500 acres with herbicides in alternative "G" and only 5000 acres manually, you have MORE risk of poisoning the people who live in these treated areas, not to mention wildlife, desired vegetation, etc. These hidden factors are far-reaching as chain reaction happenings occur. Simply because somebody believes they have a better way of doing something does not mean that all the potentially dangerous repercussions have been considered. The use of chemicals in our environment is a lot like the use of explosives (dynamite). The later must be site selective and you can foretell and see the results of the explosive action. However, the former brings results unseen and unexpected. If we can learn to use chemicals as we use explosives, then a lot could be accomplished. As of now we have a lot to learn, and we must proceed with caution.

30 Chapter IV-Environmental consequences-page IV-13-Exposure levels-A reference point not discussed is the picking of contaminated wild greens such as: poke, plaintain, wild lettuce, mouses ear, etc. that have been sprayed on the forest floor. This is frequently

(Continuation of Forest Service response)

29 The sediment produced by vegetation management is so small compared to natural levels that this 370-ton increment has no effect on aquatic resources. As for herbicide effects, see response to comments in Letter No. 43, Comment No. 7 and Letter No. 70, Comment No. 3. Also recall that alternative G mandates several new mitigations not required presently.

30 Berries are the prime consumable forest product foraged on the Coastal Plain/Piedmont, so they were analyzed in the EIS. Review of the characteristics of herbicides relative to the plants being foraged suggests that the analysis is adequate for extrapolation to other forest plants foraged for food. In fact, it may be conservative for many; certainly it is for those foraged in the early spring when few herbicide related activities are being performed.

done in Appalachia in the spring during your treatment periods, and would cause a high exposure rate to people who eat and can them for future consumption. Tests should be done and this item should be added to your Tables IV-1 and IV-2.

There is still another area of contention in your EIS, that must be addressed. For the most part our concern deals with the effects
31 of herbicides on homosapiens. There is a basic difference between toxicity and hazard. I don't believe that these differences are emphasized enough in your EIS. Toxicity may reflect symptoms at the time of exposure, while "hazard" reflects the long term capability of even a small amount of a chemical of low toxicity to infiltrate body tissues and cause cancer or other abnormalities one year or 15 years later. Some chemicals are more toxic than others and when a small amount is ingested orally or contact is made through dermal exposure, the hazard is great. Hazard really should be thought of as "use hazard". Therefore, factors that influence this are not only related to the toxicity of the herbicide, but the dose and the concentration of it in the environment, the time which an individual is in this environment, with the number of repetitious exposures, and the route of absorption into the human body. "Use hazard", then is expressed as the potential of a herbicide to poison that environment and all living creatures that call the place home or habitat. It can be direct or indirect from breakdown products or from synergistic use of chemicals. In the past there's been a lot of mixing of chemicals, with each chemical being tested
32 individually, but there is a lack of knowledge as to what will happen when two or more are combined. There should certainly be no mixing of basic chemicals until we know the attributes of each of the basic chemicals. We're just not that far along yet. All these things refer to the hazard, and has resulted in the stringent regulations set down by the Federal Environmental Pesticide Control Act of 1972. Some of the provisions of this act are:

1. Use of the pesticide inconsistent with the label is prohibited.
33 2. Deliberate violations by growers, applicators or dealers can result in heavy fines and/or imprisonment.
3. Anyone applying pesticides must be certified.

My point is: Does the youth worker who comes home after an 8 hour day in the forest, where he has been dispensing herbicides, with his clothing saturated and smelling like diesel oil, really understand the nature of the "use hazard" in which he is involved? Is
34 he certified? Or was he simply directed by a certified applicator who fails to inform that youngster of the hazard in which he partakes. Being employed by the federal government with no guarantee of retribution for the negligence of others and no guarantee by the manufacturer, he ends up with cancer, because of the desire of a forest manager to do a job the easy way, even though it costs a little more. The real cost is the damage done to the agent of the applicator, youths without certification and without protective clothing, Not, the certified forester who sits in his truck at the edge of the field being treated.

This is just one example. I could cite dozens. When you begin to aerial spray again, the margin for errors increase, and this EIS

31 Difference between toxicity and hazard is the basis for most of the risk assessment. If toxicity had been our only concern only chapters 1, 2, 3, and 6 of the risk assessment would have been prepared. The discussion of exposure (chapters 4 and 7) and the discussion of risk/hazard (chapters 5 and 8) respond to your concern.

32 No evidence exists to suggest that tank mixtures pose a reasonably forseeable risk of adverse effect. Pages IV-23 and IV-24 of the Draft EIS address this question.

33 This EIS is stricter than FIFRA (the Federal Insecticide, Fungicide and Rodenticide Act) regarding mitigations which are required. Our mitigations (pages II-48 to II-54 of the Draft EIS) require application rates lower than those which are labeled (label rates are now to be considered the maximum permissible rates). Additional (but not fewer) safety precautions than those specified on the label are also mandated. FIFRA stipulates that all persons applying "...restricted use pesticides..." must be certified. It does not cover other persons. The Forest Service has gone far beyond legal requirements in this case.

34 This hypothetical situation will not occur if mitigation measures are followed. Monitoring is required to ensure that each mitigation is applied and effective. However, we have discussed significantly worse scenarios in drafts of both the Risk Assessment and the EIS.

will be your authority for doing so. If you don't have some way to enforce the intent of this vegetation management study, then it is worthless. For that reason managers should know about and live
35 by SARA. Your EIS should tell more about "Use Hazard" along with toxicity. There should always be follow-up at every level of administrative control.

You do not show your herbicides as Category I, II, III or IV. Even though this information is on the label in the form of a key-word. An EIS that proposes the use of these substances should spell out their hazardous nature. You've dealt in part with toxicity,
36 showing the known studies from your available sources, but you've failed to show EPA's evaluations for these chemicals. After all, you include only 14 and I believe the people affected need to know what EPA says about these chemicals, not just what your team has copied from Trade Name Labels about their use. What are the "use hazards" for each of these chemicals?

Gentlemen, what I've written here, I believe to be based on the record. Needless to say, much more could be written. As you say in Volume I, Chapter II-73, "Aerial application of herbicides is currently suspended by the Chief of the Forest Service. Aerial application by helicopter is analyzed in Alternatives G and E. If the Record of Decision includes aerial application, the Regional Forester will request the suspension be lifted prior to aerial methods". And you reiterate again, "Alternative G is the Forest Service's preferred alternative".

My comment is: You must want to aerial spray in the Southern Region awfully bad. As you know, the suspension of spraying was brought on by public uproar throughout the U.S., but mostly in the Pacific Regions. If you, through the promulgation of this EIS, receive approval to aerially treat 7000 acres or about 14% of the herbicide program, then we believe that the next step will be an increase in the program to the 28000 acres or 43% of the herbicide program as shown in alternative E. The role now is to legally break the barrier and return to the good ole-days when everything and everybody gets sprayed. First, you should learn to walk be-
37 fore you fly with your chemical treatment programs. Its still a babe in arms with violations of the FIFRA Amendment everywhere. You should abstain from your request for aerial treatment until your program becomes reliable and valid. A good way to start is your alternative E. This EIS is a good effort towards making things right, but you need to reassess your decisions based on it's content.

Sincerely yours,

Robert E. Stephens

Robert E. Stephens

35 The mitigation measures in Chapter II of both Draft and Final EIS require supervision during the project and require stringent follow-up (monitoring).

36 On pages IV-11, IV-12, and IV-54 in the Draft EIS the EPA-designated categories for herbicides proposed for use in the Southern Region are presented. Our evaluation of "use hazard" within the constraints of our program is presented on pages IV-13 through IV-23 of the Draft EIS, including both acute and chronic exposure considerations for humans. Wildlife effects are reported on pages IV-52 through IV-62 of the Draft EIS and this discussion includes not only acute and chronic health effects but also indirect effects resulting from habitat alteration.

37 Data presented in the Risk Assessment and summarized in the EIS indicate that there is little potential for negative health effects from aerial application of the herbicides evaluated. Mitigations presented in chapter II of the EIS were found to be sufficient to protect the environment. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

53

Tom Veilleux
3322, 2701 W. Bay Area
Webster TX 77598

7-24-88

Dear Forest Service,

This is in regards to your DEIS for Vegetation Management in the Coastal Plain and Piedmont. After reading and considering information from the DEIS, I can conclude Alternative C is the only good alternative. Your choice of Alternative G, which
1 involves spraying herbicides from the air is like trying to kill a fly with a canon ball - overkill. Go easy on our forests and use Alternative C.

Tom Veilleux

Response to Comments in Letter No. 53

From: Tom Veilleux

Comment No.	Response
1	The commenter's preference for alternative C was included in the content analysis of all comments received. Alternative C does have some favorable effects, but also has effects (such as use of less effective treatments and inability to meet Forest Land and Resource Management Plan output objectives) considered unfavorable by other commenters. All alternatives, including C and G, have positive and negative effects which are summarized on page II-68 through II-73 of the Draft EIS. Also refer to mitigation measures and management requirements in chapter II (pages II-35 through II-54 in the Draft EIS) for clarification on how adverse effects are mitigated. Scientific evidence presented in the risk assessment and the EIS supports the position that the herbicides evaluated can be used as an effective, relatively risk free tool in the forest environment if mitigation measures found in chapter II are incorporated. Mitigation measures for the use of herbicides (pages II-48-54 of the Draft EIS) including reduced application rates, emphasis on selective rather than broadcast use, buffering sensitive areas, etc. are all used to improve the relative degree of safety for workers, the public and wildlife, and to minimize adverse effects to non-target plants and the environment.

54

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?
Most Layman Can Read and understand

Comments on Alternatives:

1 I Pick alternative H To Be The Best For all Concerned

Why?
This alternative Would allow The Forest Service To Have Several Tools at Their Disposal To Manage The Forest In a Productive Manner For all The Citizens of The United States

Other:
Another alternative Would Manage The Forest Service In a Productive Manner For all The Citizens of The United States

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Elmer & Nellie Williams
Name: First MI Last

807 Copeland
Street

Lufkin Texas 75901
City State Zip Code

Response to Comments in Letter No. 54

From: Elmer and Nellie Williams

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter feels the analysis is easily read and understood. The commenter's preference for alternative H based on availability tools was included in the content analysis of all comments received.

55

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1 Comments on Scientific Analysis: Although the detrimental effects of fuel oils on birds' eggs have been well documented, they were not addressed in the EIS.

Why? The aerial applications of fuel oils, such as diesel, could significantly reduce hatching success in nests receiving even minute quantities of oil.

2 Comments on Alternatives: Alternaiive B is the preferred method. Alternatives G and H are unacceptable.

Why? Alternative B provides maximum protection for wildlife resources yet allows adequate vegetational management. Alternatives G and H allow heavy herbicide use, including aerial applications, which increases the risk of exposure to wildlife and the contamination of streams and lakes.

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Name: Dr. Donald H. White
First MI Last
U.S. Fish & Wildlife Service
School of Forest Resources
Street University of Georgia
Athens, GA 30602
City State Zip Code

Response to Comments in Letter No. 55

From: Donald White

Comment No.	Response
1	Page IV-52 in the draft EIS reads "Diesel oil has been demonstrated to be lethal to chicken embryos at a very low concentration in a single dose application." This is also addressed in the Risk Assessment (appendix A) on pages 6-10 and 6-11 where effects on mallard eggs are noted at high exposures. Several mitigations have been required recognizing the potential adverse effects the fuel oils might have on birds (see mitigation numbers 2, 3 & 4 on page II-48, and number 7 on page II-49 of the Draft EIS). Additionally, on page II-62 of the Final EIS, an additional requirement has been addded (mitigation measure number 19) in order to protect the eggs of threatened, endangered, proposed, and sensitive bird species from kerosene, diesel oil, or herbicides containing kerosene or diesel oil in its formulation.
2	The commenter's preference for alternative B was included in the content analysis of all comments received. Alternative B does have some favorable wildlife effects, but it also has effects considered unfavorable by other commenters. Alternatives G and H have the negative effects listed, but have effects considered favorable by other commenters. A summary of effects is in Chapter II, part H, of the Draft EIS. For aerial application concerns see response to comments in Letter No. 70, Comment No. 3.

56

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

VERY THOROUGH.

Why? EASY TO READ AND UNDERSTAND FOR A LAYMAN. WELL RESEARCHED.

1 Comments on Alternatives: I PREFER ALTERNATIVE D.

Why? HERBICIDES NOT USED. ALL METHODS AVAILABLE FOR MANAGING WILDLIFE. THE PROTECTION OF WILDLIFE POPULATIONS FROM ADVERSE EFFECTS OF VEGETATION MANAGEMENT. LOW RISK TO SOIL DISTURBANCE.

Other:

Why?

THANK YOU FOR ALLOWING ME TO COMMENT ON THIS EIS. PLEASE KEEP ME INFORMED OF THESE MATTERS.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

NEW ADDRESS
OLD WAS - RT. 1, Box 237

ROBERT L. SNIPES
Name: First MI Last

2324 SANDY LANE
Street

MEBANE N.C. 27302
City State Zip Code

Response to Comments in Letter No. 56

From: Robert Snipes

Comment No.	Response
1	The commenter's preference for alternative D was included in the content analysis of all comments received. Alternative D does have some favorable wildlife effects, but it also has effects considered unfavorable by other commenters. Under this alternative not all methods are available for wildlife management. Herbicides which are used for this purpose currently and in several other alternatives are not available. The positive and negative effects of alternative D are summarized on page II-70 of the Draft EIS. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS.

57

GEORGIA FORESTRY ASSOCIATION, INC.
40 Marietta Street, Suite 1020 • Atlanta, Georgia 30303-2806 • (404) 522-0951

C. Bonner Jones
President

Bob Izlar
Executive Director

July 29, 1988

Mr. John E. Alcock
Regional Forester
USDA Forest Service
1720 Peachtree Rd., [redacted]
Atlanta, Georgia 30367

Dear Jack:

Upon review of the Draft Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont, the Georgia Forestry Association supports the preferred alternative (Alternative G) with one exception. The minimal use of aerially applied herbicides. We understand the forces working against this particular practice, but when
1 applied in a proper and responsible manner the cost-effectiveness of aerially applied herbicides can not be denied. We would like to see an increase in the total number of acres treated in this manner.

Thank you for giving the GFA an opportunity to review and comment on this DEIS.

Sincerely,

Bob Izlar
Executive Director

BI/wto

Response to Comments in Letter No. 57

From: Bob Izlar

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received. Data in the risk assessment supports the position that responsible aerial application of the herbicides that were evaluated poses low risk to workers, the public, and the environment.

58

RESPONSE FORM

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However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Alternative G

1

Why? Need aerially applied herbicides and prescribed fires. More needs to be done with public and schools.

Comments ~~on Alternatives:~~ Our thanks to Gary Sick - We need ~~three~~ six more copies Vegetation Management part 1 + 2 for Fort Smith Public Library and Westark Community College Library and School Libraries. We need more copies IF you have them.

Why?

Other: You did excellent work on the Draft Environmental Impact Statements 1 + 2

Why? We will work with you in any way we are able.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Richard A. Gordon, Jr. President
Public Awareness Committee, Inc
Name: First MI Last
1145 No. 57th Place
Street
Fort Smith AR 72904
City State Zip Code

Response to Comments in Letter No. 58

From: Richard A. Gordon, Jr.

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter considers the Draft EIS excellent work. The commenter's preferences for alternative G and for aerially applied herbicides and prescribed fire were included in the content analysis of all comments received.

(1)

August 1, 1984

Forest Service,

I have looked over the two books on Vegetation Management in the Coastal Plain/Piedmont. Environmental Impact.

I am not a chemist. I live in a 1 family dwelling with trees surrounding. Last year I watered a huge oak. So far it is surviving.

We the people of the modern world do have a problem. People, Needs, and ways to meet our needs.

I think we need look no further than to our Indian ancestors to know what to do. We need all of our under growth to hold moisture but we need farm land.

Some people on a small scale are beginning to use organic material

59

(2)

to hold in moisture. I keep all of my house yes, I raise snakes with my moisture but I don't need an air conditioner because I have one most of the time I do need fans and yes it does get hot but usually a breeze helps it to be bearable.

1 personally, I don't think we need to destroy the undergrowth, The trees at my house are growing beautifully in a natural setting. Maybe we need to be more aware of how long it take the tree to grow. Our fastest growing problem seems to be garbage. Part of that garbage is good unused lumber. Maybe some of the lumber would not build a house but it could be used for smaller items, toys, dog houses, picture frames

Response to Comments in Letter No. 59

From: Martha Stirewalt

Comment No.	Response
1	Comments noted. Vegetation management is necessary to accomplish many resource management goals and objectives. Environmental conditions at the project level will determine the specific need for, and amount of, vegetation management to be done. Target plants, as well as some individual non-target plants, are injured or killed by all vegetation management methods. However, mitigation measures such as number 17 on page II-41 of the Draft EIS requires that projects be designed in such a manner so as to protect and manage for a variety of species.

(3)

We also need to be more careful with what we are putting in Our soil, lest one day soon we have No clean water.

This is about all I have to say. I am passing the books On to a person who owns a green house and is interested in forestry.

Thanks for letting me be a part of this survey.

Sincerely
Martha Stirewalt
5875 old Beatty Ford Rd
Rockwell, NC 28138

2

(Continuation of Forest Service response)

2 Buffer strips required along perennial and intermittent streams when applying herbicides to soil protect the streams from pollution (pages IV-86-87 of the Draft EIS).

60

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

The scientific analysis appear to be very detailed and should serve the purposes of the EIS

Why?

Most laymen can read + understand

Comments on Alternatives:

1 I pick alternative H to be the best for all concerned.

Why?

This alternative would allow the Forest Service to have several tools at their disposal to manage the forest in a productive manor for all the citizens of the U. S. A.

Other:

Why?

We the people cannot let a few eccentric people tell the Forest Service how to manage our forests. And this woodpecker is not as important as feeding our families.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Delano Eugene Bitner
Name: First MI Last

Rt. 1 Box 378
Street

Zavalla, Texas 75980
City State Zip Code

Response to Comments in Letter No. 60

From: Delano Bitner

Comment No.	Response
1	The commenter's preference for alternative H was included in the content analysis of all comments received. Alternative H does allow the use of several tools by managers. Other alternatives, except A, do also. Part of the basis for selection of an alternative by the Forest Service is determined by environmental effects from the alternative. People expressed preferences for many of the alternatives and the one ultimately implemented must best meet the needs of management while being responsive to public input. Table II-4 lists tool availability for each alternative.

61

ARTHUR RAVENEL, JR.
1st District, South Carolina

COMMITTEE ON
ARMED SERVICES
SUBCOMMITTEES
MILITARY INSTALLATIONS
AND FACILITIES
MILITARY PERSONNEL
AND COMPENSATION

Congress of the United States
House of Representatives
Washington, DC 20515

WASHINGTON OFFICE
Room 1730
Longworth Building
202-225-3176

DISTRICT OFFICES
840 Federal Building
Charleston, SC 29403
803-724-4175
803-577-8872

283 Hampton Street
Walterboro, SC 29488
803-549-5395

P.O. Box 1538
Beaufort, SC 29902
803-524-2166

P.O. Box 550
Estill, SC 29918
803-625-3177

August 5, 1988

Mr. Steve McCorquodale
U. S. Forest Service
1720 Peachtree Road / NW
Atlanta, Ga. 30367

Dear Mr. McCorquodale,

Thanks for sending me the draft EIS on vegetative management of southern forests. I strongly disagree with your choice of Alternative G as the preferred alternative. My primary objections
1 involve the expanded use of herbicides and the aerial application of herbicides.

As you are well aware, our national forests have always been tremendous resources not only of timber, but of recreational and sporting opportunities as well. As populations grow, the recreational and sporting values of the forests increase also. This is particularly true on the coastal plain of South Carolina where the metropolitan area of Charleston is literally on the border of the Francis Marion National Forest. Because of increased human usage, and increasing pressures on wildlife populations, herbicide application should be reduced on the forests, not expanded.

Looking through the alternatives, it appears to me that the
2 environmental consequences indicate that alternative E has considerable benefits over alternative G. E would appear to serve the purposes of timber production while being far more compatible with the multiple use policy.

3 I would strongly urge the Forest Service to adopt an alternative that reduces herbicide usage and aerial application of herbicides. Thanks for giving me the opportunity to comment on the EIS.

With every good wish,

Arthur Ravenel, Jr.

ARJ/db

cc: Mr. Donald W. Eng

Response to Comments in Letter No. 61

From: Congressman Ravanel

Comment No.	Response
1	See response to comments in Letter No. 302, Comment Number 1. None of the evaluated herbicides, including those applied aerially, appear to pose significant risk to human or wildlife health when used properly and with mitigation measures outlined on pages II-48 to II-54 in the Draft EIS. Also, as stated in mitigation measure number 1 on page II-35 of the Draft EIS, vegetation management projects will have site-specific analaysis that will examine and evaluate a reasonable range of alternative methods, including the use of methods which do not involve herbicides.
2	Alternative E does have some of the favorable effects listed. It also has effects (such as high risk of accidental injury) considered unfavorable by other commenters. Pages II-70 and II-71 of the Draft EIS summarize the positive and negative effects of alternative E. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS.
3	As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

62

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: This analysis has been presented in a very thorough and professional manner.

Why? It responds to all the conditions and questions that should arise concerning the environment that might be affected by forest management procedures.

Comments on Alternatives:
The alternatives presented represent most all combinations of management methods that should be needed.

Why? The alternatives and mixes respond to most all intensities and frequencies of forest management procedures that might be desired.

1 Other: This impact statement is a job well done, but I hate to see Forest Service professionals using the time, effort, and expense to justify normal forest management procedures.

Why? Speaking as a professional forester with 38 years experience, forest management on the National Forests would be better served if the time, effort, and expenses used for this impact statement were used to manage the forest. My observation through the years is that the Forest Service has been doing a good job of managing the forest and that leaving the environment

(Use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

DALE R. BOWLING
Name: First MI Last
2061 WESTWOOD ACRES
Street
LAUREL, MS. 39440
City State Zip Code

Response to Comments in Letter No. 62

From: Dale Bowling

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter finds the analysis thorough and professional, and that alternatives cover a wide range and are responsive to issues. Environmental documents are prepared to display the results of scientific analysis in order to allow the public to be better informed and to allow decisionmakers an opportunity to make better decisions. This EIS was not prepared to justify actions or lack of action rather to disclose the environmental effects of the proposed action.

63

FM208 08/01/89

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
116 WEST JONES STREET
RALEIGH NORTH CAROLINA 27611.

INTERGOVERNMENTAL REVIEW COMMENTS

MAILED TO

USDA FOREST SERVICE
JOHN ALCOCK
SOUTH. REGION/1720 PEACHTREE RD. N.W.
ATLANTA, GEORGIA 30367

FROM

MRS. CHRYS BAGGETT
DIRECTOR
N C STATE CLEARINGHOUSE

PROJECT DESCRIPTION

VEGETATION MANAGEMENT IN THE COASTAL PLAIN/PIEDMONT REGIONS OF NORTH CAROLINA

SAI NO 88E00001006 PROGRAM TITLE - DRAFT EIS

THE ABOVE PROJECT HAS BEEN SUBMITTED TO THE NORTH CAROLINA INTERGOVERNMENTAL REVIEW PROCESS. AS A RESULT OF THE REVIEW THE FOLLOWING IS SUBMITTED ( ) NO COMMENTS WERE RECEIVED

(X) COMMENTS ATTACHED

SHOULD YOU HAVE ANY QUESTIONS, PLEASE CALL THIS OFFICE (919) 733-0499.

cc: Regions C, E, P

Response to Comments in Letter No. 63

From: Chrys Baggett

Comment No.	Response
	This is a cover letter which requires no response. Comments attached to this letter are numbered sequentially beginning with the number 64 and ending with number 68; each is responded to separately.

64

North Carolina
Department of Administration

James G. Martin, Governor
James S. Lofton, Secretary

Office of Marine Affairs
W. Neal Conoley, Jr., Director

August 1, 1988

MEMORANDUM

TO: State Clearinghouse

FROM: Donna Moffitt Donna Moffitt

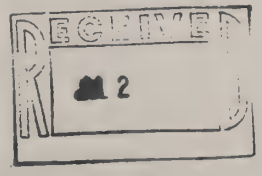
SUBJECT: 88-E-0000-1005 (Vegetation Management in the Coastal Plain/Piedmont)

This is one of the most complete, logically presented, and well written environmental impact statements that I have seen. The alternatives and impacts of each are clearly presented.

My recommendation is Alternative F for the coastal plain of North Carolina. I believe the risks from aerial application of herbicides, even for
1 areas as small as right-of-way maintenance, near coastal waters are unacceptable. Preventing herbicides from reaching the surface of sensitive coastal estuaries is not possible. Alternative G is probably acceptable in the piedmont of North Carolina.

North Carolina has established a task force to encourage the development of aquaculture. The coastal plain has the greatest potential for cultured species such as striped bass, catfish, and crayfish. Natural species which rely on good water quality that are economically important to this state include shrimp, oysters, clams and scallops. Consequently, we must insist that land-based activity be as environmentally safe as possible if we hope to see a successful aquaculture industry in this state.

DM/df



417 North Blount Street • Raleigh, North Carolina 27601-1009 • Telephone 919-733-2290
An Equal Opportunity / Affirmative Action Employer

Response to Comments in Letter No. 64

From: Donna Moffitt

Comment No.	Response
1	The commenter's preference for alternative F was included in the content analysis of all comments received. See response to comments in Letter No. 70, Comment No. 3. Mixing, dilution, and degradation downstream will virtually eliminate herbicides from the water by the time they reach coastal estuaries.

65

NCDA
North Carolina Department of Agriculture

James A. Graham • Commissioner
William G. Parham, Jr. • Deputy Commissioner
Ray Forrest
Assistant Commissioner

RECEIVED
JUL 28 1988
SECRETARY'S OFFICE

MEMORANDUM

DATE: July 26, 1988

TO: Chrys Baggett, Director
NC Clearinghouse
Department of Administration

FROM: Tom Ellis
Natural Resources Advisor
Department of Agriculture

SUBJECT: DEIS, Vegetation Management in the Coastal Plain/ Piedmont - US Forest Service, Volume 2 (88-E-0000-1005)

1 Our review of the DEIS shows it to be quite thorough in dealing with herbicides. The one point we wish to identify is the absence of Appendix A which is to include the risk assessment for herbicide use. This should be icluded in the Final EIS.

TE:mk

Enclosure

P.O. Box 27647, Raleigh, N.C. 27611 (919) 733-7125

Response to Comments in Letter No. 65

From: Tom Ellis

Comment No.	Response
1	Appendix A is a part of volume II of the Draft EIS. Volume II of the Draft EIS, due to its complexity, was mailed only to those who specifically requested it. The Risk Assessment is also appendix A of the Final EIS, and is being mailed to everyone on the mailing list.

66

State of North Carolina
Department of Natural Resources and Community Development
512 North Salisbury Street • Raleigh North Carolina 27611

James G. Martin Governor
S. Thomas Rhodes Secretary

Edythe McKinney
Director
Planning and Assessment

MEMORANDUM

TO: Chrys Baggett
State Clearinghouse

FROM: Melba McGee
Project Review Coordinator

RE: 88-1005-USFS DEIS, Vegetation Management

DATE: July 28, 1988

The Department of Natural Resources and Community Development has reviewed the U.S. Forest Service (USFS) Draft Environmental Impact Statement for Vegetation Management in the Coastal Plain and Piedmont. The attached comments are from the N.C. Wildlife Resources Commission, Division of Parks and Recreation and the Division of Water Resources.

1 In general, our divisions have concerns relative to herbicide use and its effect on sensitive species of plants and wildlife habitat. Particularly, since so many of these species were omitted from the DEIS endangered list. While a preferred alternative has not been agreed upon, our divisions do agree that they should be consulted during site planning and able to carry out their responsibilities in habitat management. Other specific concerns have been reflected and should be adequately addressed by the USFS.

Thank you for the opportunity to review.

MM:bc
attachments

P.O. Box 27687 Raleigh North Carolina 27611-7687 Telephone 919-733-6376

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Response to Comments in Letter No. 66

From: Melba McGee

Comment No.	Response
1	Species in appendix E of the Final EIS reflect the correct status of threatened, endangered, and proposed species as designated by the U. S. Fish and Wildlife Service in the Federal Register which are known to occur on national forest lands in North Carolina. Species known to occur on national forest lands in North Carolina which are identified by the Forest Service as sensitive also are shown. As the National Forests in North Carolina update their list of sensitive species, based on coordination with the State of North Carolina, this appendix will be updated. As stated in mitigation measure number 2 on page II-37 of the Draft EIS, coordination with appropriate State agencies will occur when a proposed project may adversely affect sensitive species.

67

DIVISION OF PARKS AND RECREATION

INTER-DIVISIONAL MEMORANDUM

TO: Melba McGee

FROM: Carol Tingley C Tingley

DATE: July 6, 1988

SUBJECT: 88-1005: USFS DEIS, Vegetation Management

The Division of Parks and Recreation has reviewed the U. S. Forest Service Draft Environmental Impact Statement for Vegetation Management in the Coastal Plain and Piedmont. Our Division includes the N. C. Natural Heritage Program, which identifies and tries to protect natural areas and rare species which are important to the preservation of natural diversity in North Carolina. We have several concerns with the DEIS and the preferred alternative.

1 The lists of endangered, threatened, and sensitive species in the document are woefully inadequate for North Carolina's National Forests. Even the Federally listed Red-cockaded Woodpecker, which has numerous colonies on Croatan National Forest, is not indicated as occurring in North Carolina. A list of rare plant and animal species of which we have records in Croatan and Uwharrie National Forests is attached. It contains 24 species not included in the DEIS. All or almost all of these species should be considered sensitive and should be considered in vegetation management.

2 We are opposed to the proposed increase in herbicide use and introduction of aerial spraying. The non-selective action of herbicides will have detrimental effects on numerous native non-target plant species. It is likely to be much more harmful than the other methods, particularly fire, to which many native species are adapted. This concern is acknowledged as an issue in the DEIS, but does not seem to have been adequately addressed.

The effect of widespread herbicide use on endangered and sensitive species of plants is difficult to estimate but is very likely to be higher than estimated in the DEIS. The omission of so many species from the list raises the possibility that those carrying out the planning may not know which species are sensitive and where they occur. Inadvertant destruction of known sensitive populations could be avoided through consultation with the state Natural Heritage Programs when planning specific projects. An additional concern, however, is the limited knowledge about sensitive species locations. Most National Forests

Response to Comments in Letter No. 67

From: Carol Tingley

Comment No.	Response
1	Species in appendix E of the Final EIS reflect the correct status of threatened, endangered, and proposed species as designated by the U. S. Fish and Wildlife Service in the Federal Register which are known to occur on national forest lands in North Carolina. Species known to occur on national forest lands in North Carolina which are identified by the Forest Service as sensitive also are shown. As the National Forests in North Carolina update their list of sensitive species, based on coordination with the State of North Carolina, this appendix will be updated.
2	Prior to any vegetation management treatment, projects will undergo site-specific analysis (mitigation measure number 1 on page II-35 of the Draft EIS) which determines appropriate methods and tools, intensity and selectivity of applications, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. This includes the examination and evaluation of a reasonable range of alternative methods, including the use of methods which do not involve herbicides. In order to prevent unknowing impacts on threatened, endangered, proposed, or sensitive species, regardless of the method or tool proposed for use, mitigation measure number 2 on page II-36 of the Draft EIS specifically states that when adequate population inventory information is unavailable, it will be collected when the affected site has a high potential for occupancy by a threatened, endangered, proposed, or sensitive species. Figure D-1 of the Final EIS traces the process required to insure adequate assessment of potential harmful effects. Mitigation measure number 8 on pages II-49 and 50 of the Draft EIS further protects these species from risk of adverse effects. Additionally, recognizing the potential risks from broadcast (ground or aerial) application of herbicides our emphasis is placed on selective use of carefully chosen herbicides (mitigation measures numbers 5 and 6 on pages II-48-49 of the Draft EIS). Mitigation measure number 5 on page II-48 further directs that preference be given to those herbicide application methods which affect the minimum amount of vegetation while meeting project objectives. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

have not had recent comprehensive rare species inventories, and new populations continue to be discovered in National Forests. While unknown sensitive populations could become victims of any vegetation management technique, the less natural and less specific methods such as broadcast herbicide spraying will be the most destructive.

Maintenance of roadsides and utility corridors is a particular concern for sensitive plants on the Coastal Plain. A great diversity of species occurs on these open areas, which mimic their open, fire-maintained natural habitat. Since most of their natural habitat has been lost because of fire suppression and forestry practices, these corridors often are the primary remaining sites for them. The DEIS indicates that such corridors would be likely sites for herbicide spraying. This would certainly eliminate many plant species and replace them with a few herbicide-tolerant species. We encourage the use of mowing and, where possible, controlled burning, to maintain corridors, particularly in the Coastal Plain. 3

The DEIS proposes 100-foot buffers for water bodies as a mitigation measure for aerial herbicide spraying. It seems unlikely that such a small buffer would reliably protect areas from combinations of overshooting boundaries, spray drift, and movement of material in runoff and soil water. In addition, in hillier areas, small intermittent channels which are not buffered when spraying, may carry herbicides or contaminated soil into larger water bodies. 4

The proposed mitigation measures do not include provisions for potentially sensitive areas such as Special Interest Natural Areas, Research Natural Areas, and Wilderness Areas, other than those with sensitive species. While management techniques that mimic natural processes are often needed in such areas and specific other methods may be needed for research, effects from unnatural, nonspecific methods are likely to be detrimental. Such sensitive areas should have buffers from herbicide spraying in the same way that sensitive species should. 5

In conclusion, we support the following:

1. Increased emphasis on controlled burning and more specific methods, with no increase in herbicide use and no aerial spraying. This is closer to Alternative E than to Alternative G.

2. Improved knowledge and consideration of sensitive species. Comprehensive inventories for such species should be

(Continuation of Forest Service response)

3 Many of these corridors became refuges for sensitive plants or animals only after being created, and over the years being maintained, by both herbicides and mowing. Once discovered, threatened, endangered, proposed, and sensitive plant or animal species are subject to the mitigations required in chapter II of the EIS. See Comment No. 2 of this letter.

4 Peak herbicide concentrations in streams due to drift and accidental overflight occur the day of application, but later if due to surface or subsurface runoff. See response to comments in Letter No. 70, Comment No. 3.

5 Management prescriptions and constraints for special areas are set forth in Forest Land and Resource Management Plans. Paraphrasing or restating these stipulations in this EIS is unnecessary. Reviewers are urged to consult the appropriate Plan to determine how these special areas are managed.

conducted and periodically updated. State Natural Heritage Programs should be consulted during site specific planning for vegetation management.

3. If aerial herbicide spraying is to be used, wider buffers should be required around water bodies, and similar buffers should be required around Special Interest Natural Areas, Research Natural Areas, and other designated areas.

Thank you for the opportunity to review this information.

cc: Charles Roe, N. C. Natural Heritage Program

5082

SPECIES MONITORED BY NORTH CAROLINA NATURAL HERITAGE PROGRAM
PRESENT ON CROATAN AND UWHARRIE NATIONAL FORESTS
BUT NOT LISTED IN DRAFT VEGETATION MANAGEMENT EIS

animals

scientific and common name	state stat	fed stat	state rank	glob rank
URSUS AMERICANUS	SC		S3	G5
BLACK BEAR				
AIMOPHILA AESTIVALIS	T	C2	S3	G3
BACHMANS SPARROW				
PICOIDES BOREALIS	E	LE	S2	G2
RED-COCKADED WOODPECKER				
SPHYRAPICUS VARIUS	SC		S2	G5
YELLOW-BELLIED SAPSUCKER				
CROTALUS ADAMANTEUS	E		S1	G5
EASTERN DIAMONDBACK RATTLESNAKE				
OPHISAURUS MIMICUS			S2	
MIMIC GLASS LIZARD				
RANA AREOLATA	SC		S2	G5
CAROLINA GOPHER FROG				
AMBYSTOMA TALPOIDEUM	SC		S2	G5
MOLE SALAMANDER				

plants

ASCLEPIAS PEDICELLATA	PP		S1	G3G4
STALKED MILKWEED				
CAREX IMPRESSINERVIA	SR		S1	G?
A SEDGE				
DIONAEA MUSCIPULA	SR	3C	S3	G3
VENUS FLYTRAP				
ELEOCHARIS ROBBINSII	SR		S1	G4G5
ROBBINS'S SPIKERUSH				
FISSIDENS HALLII	PP		S1	G2
HALL'S POCKET MOSS				
HELENIUM BREVIFOLIUM	SR		S1?	G4
LITTLELEAF SNEEZEWEED				
LISTERA AUSTRALIS	SR		S2	G4
SOUTHERN TWAYBLADE				
LITSEA AESTIVALIS	SR	3C	S2	G4G5
PONDSPICE				
LYSIMACHIA ASPERULAEFOLIA	E	LE	S2	G2
ROUGH-LEAF LOOSESTRIFE				
MALAXIS SPICATA	SR		S1	G3G5
FLORIDA ADDER'S MOUTH				
PELTANDRA SAGITTAEFOLIA			S2	G?
SPOONFLOWER				

scientific and common name	state stat	fed stat	state rank	glob rank
PLATANTHERA INTEGRA YELLOW FRINGELESS ORCHID	T	3C	S1	G3G4
POLYGONELLA ARTICULATA COAST JOINTWEED	PP		S1	G5
RHEXIA CUBENSIS CUBAN MEADOW-BEAUTY	SR		S1	G?
RHYNCHOSPORA BREVISETA SHORTBRISTLED BEAKRUSH	SR		S1	G?
SPHAGNUM FITZGERALDII FITZGERALD'S PEATMOSS	PP		S2	G2

68

DIVISION OF WATER RESOURCES

July 27, 1988

MEMORANDUM

TO: Melba McGee

FROM: John Sutherland

SUBJECT: DEIS on Vegetation Management by U.S. Forest Service

We have reviewed this document and provide the following comments from Dave Penrose of DEM:

1. The report includes very little discussion of aquatic effects herbicide misuse. Alternative G (preferred alternative) includes aerial application of herbicides and the DEIS states (page II-65) that there is "some risk of herbicide pollution" for this alternative. Where would this risk be the greatest, and what precautions can be taken to reduce the risk? 1

2. Should the DEIS discuss the use of Bt and/or Dimilin for gypsy moth eradication? 2

We also note that while this DEIS appears complete it is difficult to assess because of its size and complexity.

bb
cc: Dave Penrose
Dave DeMont
Alan Clark

Response to Comments in Letter No. 68

From: John Sutherland

Comment No.	Response
1	Consideration was given to the effects of vegetation management tools on terrestrial environments. Some consideration was given to secondary or potential accidental effects on aquatic environments, but no consideration was given to direct effects of vegetation management in aquatic areas because no treatments are planned. Two accident scenarios are discussed for accidental introduction of herbicide into the aquatic environment: a 5 gallon drum spill into a pond and a 100 gallon helicopter dump over static water (a reservoir). Buffers and mitigation measures described in chapter II reduce the risk of accidental effects.
2	No, the control of gypsy moth is currently covered by a separate EIS and is beyond the scope of this document.

69

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: The draft Environmental Impact Statement (EIS) thoroughly analyzes all up-to-date available scientific research data on the known environmental consequences for eight alternative approaches to vegetation management in the Coastal Plain/Piedmont national forests.

Why? The resulting draft EIS has a very adequate scientific analysis and evaluation for eight alternative approaches to vegetation management in the Coastal Plain/Piedmont area. It is well organized, clearly written with many illustrations and graphs and very complete with glossary, references and index.

Comments on Alternatives: Alternative G is the best alternative.

Why? Alternative G: Provides most benefits at lowest cost.
Prescribed fires are patterned to enhance variety of wildlife habitat, less fuel for wild fires and it also aids in longleaf pine reproduction on the coastal plain.
Decrease in use of mechanical methods results in less soil disturbance and reduces risks of injury to forest workers.

Other:

Alternative G responds to my concerns.

1 **Why?** My main concerns are avoiding use of mechanical equipment to reduce soil disturbance, providing a variety of habitat for wildlife and safe use of herbicides, especially to prevent ground water pollution.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Philip	McC.	Drumheller
Name: First	MI	Last
309 Briarhill Road		
Street		
Enterprise	AL	36330
City	State	Zip Code

Response to Comments in Letter No. 69

From: Philip Drumheller

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received. Alternative G reduces the number of acres treated mechanically (compared to current) and institutes stricter requirements for the use of fire, mechanical, and herbicide methods. Please see table II-1 on page II-33, mitigation measures and management requirements on pages II-35 through II-54, and table II-5 on page II-62 of the Draft EIS.

70

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form to respond.

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Expected herbicide use to decrease instead of increase; prefer alternative C or a gradual reduction in the use of herbicides to set precedent for private land management. Because of chance of accidents would like to see action with ban on Helicopter spraying

1

Why? Ground water contamination; stream contamination

Destruction of non-Target species. Clear cutting should also be restricted to strips of smaller size + width

2

Comments on Alternatives: Prefer alternatives that decrease the use of [redacted]

3

Herbicides and prescribed fire for the most obvious reasons of all ① Ground water + stream contamination by herbicides ② Habitat destruction Co_2 build up in atmosphere + stream pollution Except by prescribed fire we get enough Co_2 from our vast natural

Why? Why must you always increase areas managed? Why not increase areas kept the Hell alone?

Other: Prefer mechanical means of control or Limited sized strips with more area left to protect streams and riparian areas

Why? Because clean water + air are essential for life, so is being able to see forests as they should be naturally

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Larry G. Mabry
Name: First MI Last
5824 Hogan-Stone Park Rd.
Street
Pleasant Garden N.C. 27313
City State Zip Code

Response to Comments in Letter No. 70

From: Larry Mabry

Comment No.	Response
1	The commenter's preference for alternative C or the gradual reduction of herbicide use was included in the content analysis of all comments received. Per acre usage of herbicide is expected to decrease based on the mitigation measure (number 4 on page II-48 of the Draft EIS) requiring that "typical" and not "maximum" current rates are to be the highest rates used without further risk assessment. Lower impact herbicides and more selective application methods are stressed. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.
2	For ground water and stream contamination concerns, see response to Comment No. 3 of this letter. Mitigation measure numbers 2 and 5 on page II-48, number 7 on page II-49, and numbers 25 and 29 on page II-53 of the Draft EIS are specifically designed to minimize the risk of adverse effects to non-target vegetation. The issue of clearcutting is addressed in Forest Land and Resource Management Plans and is outside the scope of this document. See also issue 12, unrelated comments, on pages I-6 and I-7 of the Draft EIS.
3	Mitigation measures require low application rates (number 4 on page II-48 of the Draft EIS) and buffers along lakes, streams, wetlands, and water sources (numbers 26 through 29 on page II-53 of the Draft EIS) based on Risk Assessment models (appendix A, pages 4-24-61) and many field studies (appendix C). These data suggest that, using nozzles producing large droplets (page II-53 of the Draft EIS), buffers of 100 feet (aerial) and 30 feet (ground) should not produce peak herbicide concentrations in streams from drift or runoff that exceed 0.050 ppm. This value is half of EPA's strictest drinking water standard and poses minimal risk to aquatic plants and animals. A study of glyphosate applied as large droplets by air with an 82-foot buffer found a peak concentration of only 0.002 ppm. Ground water should be even less affected, since the models and field studies show that peak concentrations in shallow sand aquifers directly under the treated area (the most sensitive possible situation) should not exceed 0.025 ppm. Deeper aquifers tapped by wells should have negligible concentrations. There are 2 exceptions:

(letter continues on next page)

(1) Aerial application poses risks of stream pollution by accidental application when overflying open water. The risk is highest on utility and gas lines where flight paths cross many streams, and less in timber stands where flight paths are designed to avoid streams. Effects are short-lived and decrease rapidly downstream due to mixing and dilution, but cases of onsite pollution that kill some aquatic plants and animals will occur. However, mitigation measures in chapter II, such as reduced application rates and buffers, are designed to minimize the probability of overflight and adverse effects.

(2) Tebuthiuron may pose risks to small onsite water impoundments and shallow ground water if used every few years in corridors, due to its long persistence. Effects on deeper aquifers that are used for water supply are negligible.

For further discussion of the effects of herbicides on water, see pages IV-85-88 of the Draft EIS, and section IV-G.1. of the Final EIS.

Alternative G does not allow severe slash burns or annual underburns (page II-9 of the Draft EIS), so risk to water quality from prescribed fire is minimal (pages II-44 and IV-90 of the Draft EIS). CO_2 is the most abundant gas produced by wildland fires, but amounts due to prescribed fire are too small to affect the global CO_2 balance (page IV-102 of the Draft EIS). Alternative C would reduce smoke and CO_2 emissions by an estimated 9 percent from alternative G. Alternative A, with no prescribed fire, would produce the most smoke and CO_2 (table II-8 of the Draft EIS).

4 You state on Pg I-7 that there is uncertainty about the long Term effects of herbicides, why then are we using them at all? why not hold until that uncertainty is resolved? I prefer alternative B until that time

4 The commenter's preference for alternative B was included in the content analysis of all comments received. In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." (40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier regulations. Thus, we have attempted to address both sets of regulations in our analysis.

In the Risk Assessment we address the scientific uncertainty found relative to long- and short-term effects of herbicides on both humans and wildlife. Modeling -- using conservative estimates where hard data is unavailable -- is used to estimate risks to both our workers and to the general public from the application of herbicides by a variety of tools and in a variety of potential forest environments. Based on the Risk Assessment and our assessment of the risk of other possible vegetation management tools, risks to humans from the herbicides evaluated were at or below the level of risk encountered when using other vegetation management methods.

As stated on page I-7 of the Draft EIS, the Risk Assessment (appendix A) displays estimates of risk that take into account scientific uncertainty and account for differences in individual sensitivities by incorporating safety factors. The mitigation measures displayed in chapter II of the Draft and Final EIS are based on the scientific findings of the Risk Assessment and are specifically designed to minimize risk of adverse effects to the environment from the use of herbicides.

GREAT RED SPOT (COLOR ENHANCED)

This Voyager 1 image shows Jupiter's Great Red Spot (40,000 km [25,000 miles] long) and one of the planet's white ovals with its wake of counter-rotating vortices. The Great Red Spot and the white ovals are immense swirling high pressure areas, but the ovals are much younger than the Red Spot and contain different trace elements. This image is computer enhanced in red and blue to emphasize detail.

NASA/JPL Photograph

Published by the Hansen Planetarium, Salt Lake City, Utah

PCV-1-10

seems like a good compromise Thank you Galen Overstreet

Galen Overstreet
2001 Fairfield Ct.S.
League City TX 77573

8-3-88

Dear People,

I am opposed to Alternate G for the DEIs for the Vegetation Management Plan in the coastal Plan and Peidmont. We don't need more
1 herbicide dumpen in our area! Alternative C

USDA Forest Service
Southern Region
1720 Peachtree Rd, Nu
Atlanta GA 30367

Response to Comments in Letter No. 71

From: Galen Overstreet

Comment No.	Response
1	The commenter's preference for alternative C and objections to the use of herbicides were included in the content analysis of all comments received. Technical information on the effects of herbicides can be found in appendices A and C. Less technical descriptions of effects are found in chapter IV of the EIS.

72

South Carolina Department of Health and Environmental Control

2600 Bull Street
Columbia, S.C. 29201

Commissioner
Michael D. Jarrett

Board
Harry M. Hallman, Jr., Chairman
Toney Graham, Jr. M.D., Vice-Chairman
John B. Pate, M.D., Secretary
Orch L. Braden Jr
Moses H. Clarkson, Jr
Euta M. Colvin, M.D.
Henry S. Jordan, M.D.

August 8, 1988

Mr. Steve McCorquodale
USDA Forest Service
1720 Peachtree Road, NW
Atlanta, GA 30367-9102

Re: Vegetation Management DEIS

Dear Mr. McCorquodale:

We have reviewed the above referenced document and offer the following comments for consideration.

1. Since support and reproduction of a balanced indigenous aquatic community is a classified use of all surface waters in South Carolina, the selected methods of vegetation management should not adversely affect instream biota.

1 2. Manual or mechanical control methods are preferred over herbicide use since they pose the least environmental threats, especially to human health and aquatic life. Mechanical methods with low soil disturbance are preferred since they limit soil loss to surface waters. Alternative D, with no herbicide use, supports these preferences.

2 3. If herbicides must be used, directed application rather than broadcast application should be used. Also, ground based application rather than aerial application limits herbicide entry into surface waters. If herbicide use is necessary, Alternative E appears preferable with regard to water quality and aquatic life protection.

Thank you for the opportunity to comment on this draft environmental impact statement.

Sincerely,

Sally C. Knowles

Sally C. Knowles
Water Quality Standards Coordinator

SCK:jhc
cc: Donald Eng

Response to Comments in Letter No. 72

From: Sally Knowles

Comment No.	Response
1	The commenter's preference for alternative D was included in the content analysis of all comments received. Alternative D does have some of the favorable effects listed. All effects from herbicides are eliminated because they aren't used. However, alternative D does have some effects (such as high risk of accidental injury) considered unfavorable by other commenters. Page II-70 of the Draft EIS summarizes the effects of alternative D. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS.
2	Emphasis is placed on selective rather than broadcast application techniques, and on ground rather than aerial application methods (see mitigation number 5, pages II-48 & 49, Draft EIS). Also emphasized are lower use rates (mitigation number 4, page II-48, Draft EIS) and health and safety of workers, animals and the environment (mitigation number 6, page II-49, Draft EIS). Also required are buffers along streams and lakes (mitigation number 27, page II-53, Draft EIS). The documented risk was not seen as sufficient grounds to totally preclude aerial application of herbicides or to limit ground broadcast treatments where other methods are ineffective. The commenter's preference for alternative E with regards to water quality and aquatic life protection was included in the content analysis of all comments received. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS. See also response to comments in Letter No. 70, Comment No. 3.

73

August 8, 198[illegible]

Steve McCorquodale
Coastal Plain/Piedmont EIS
USDA, Forest Service
1720 Peachtree Road, N.W.
Atlanta, Georgia, 30367

Dear Steve,

Enclosed are my personal comments on the Draft Environmental Impact Statement (DEIS) for Vegetation Management Coastal Plain/Piedmont and Appendices. My comments are separated into three parts, major comments, specific comments about the DEIS, and specific comments about the Appendices.

Major Comments

1 1) My first concern deals with the scoping comments I submitted on March 3, 1987 (copy enclosed). Among the issues I requested discussion on which have either been ignored or given cursory treatment include:

a. Effects of vegetative management (VM) on riparian and bottomland hardwood areas.

b. The safety of herbicides with specific reference to faked tests and nerve system poisoning.

c. The effects that VM has on trails and creational use of trails.

d. The efficiency of spraying (how much hits the target vs. how much hits non-target areas).

e. The impacts of VM on all types of recreation.

f. The impacts of noise from VM on solitude.

I am not satisfied with the document as far as how it resolves these issues. I request the FEIS provide a detailed discussion of these issues.

2 2) What is really sad about this DEIS is the way it incorporates shallow thinking and noninnovation. The same old prescriptions for VM are put forth as the answer. New alternatives are needed to properly conduct VM on National Forest (NF) lands. Some of these could include:

a. An Integrated Pest Management approach (IPM).

b. Using herbicides only as a last resort, on an emergency only basis.

c. Using preventive VM where harvest methods are altered and retention of ecosystem elements that control vegetation is a top priority.

d. Setting a criteria for treatment that when evidence show significant damage or growth loss then treatment will occur.

e. Selecting the treatment based on minimizing adverse environmental effects.

Response to Comments in Letter No. 73

From: Brandt Mannchen, Houston, TX

Comment No.	Response
1	Issues resulted from analysis of comments from over 800 people, and took into account management concerns (see chapter VI for an explanation of public participation and issue development). No one's comments have been ignored, however, as required by the regulations (40 CFR, 1500.4, 1502.15) not every effect is treated equally. The interdisciplinary team is not aware of any "faked" tests used for this analysis. Effects on trails are described in chapter IV, part J. Also see response to comments in Letter No. 265, Comment No. 21.
2	See response to comments in Letter No. 279, Comment No. 1, and Letter No. 295, Comment No. 1, regarding Integrated Pest Management. See also Letter No. 150, Comment No. 1. Tables II-4 and II-5 of the Draft EIS display a variety of tools and intensities of herbicide use. Alternatives B and C address your points 2.d and 2.e. See also response to comment 1 above regarding public involvement. In short, our alternatives already address most of the points you raise.

f. Involving the public more in the planning of VM.

g. Eliminating burning of herbicide treated areas and the aerial application of herbicides.

h. Devloping a herbicide profile instead of relying on a risk assessment.

i. Using IPM as the basic foundation of any VM program.

I would like to expand further on how an IPM program would be developed. IPM considers a plant as it relates to the entire ecosystem and does not isolate a problem plant from the ecosystem in an effort to eliminate it.

There are five steps in an IPM program. The first deals with monitoring. This means keeping records of important ecosystem information and assessing plant species environmental factors which influence plant survival and growth and indicate the long-term health and productivity of the ecosystem.

The second step is establishing an injury level which tells what is a tolerable level of loss and when to start looking at control. The third stipe establishes an action level which tells you when control is needed. Then you select an effective pest management treatment that is the least environmentally disruptive and poses the least harm to human health. Finally, you evaluate the program by feedback loops to ensure it maintains top knotch scientific and operational integrity.

Each type of VM program (ROW, conifer release, site preparation, etc.) should have its own IPM program designed for it. Specific criteria should be developed and used for site specific decisions for each VM program. A thorough knowledge of site conditions is needed.

The principlesof IPM that the Forest Service (FS) should use to develop alternatives include:

a. Understand the biology of the plant species you want to help.

b. Identify the key plant pests and know their biology.

c. Identify the key environmental factors and use them (know your ecosystem).

d. Suppress permanently unwanted vegetation.

e. Retain flexability.

f. Anticipate unforseen developments and expect setbacks.

g. Avoid broad impacts on the environment.

h. Use mangement that preserves, complements, and augments natural control factors.

i. Maintain and diversify the ecosystem.

j. Have excellent monitoring.

This is the type of approach the FS should have taken in the DEIS.

3) It becomes very evident shortly after you start to read this DEIS that the FS assumes that using herbicides is safe and therefore there is no great danger in their use on NF lands. However, what the FS does not seem to focus on is:

3 a. Most pesticides are not fully registered. Tests are lacking or have not not been validated, or those done have not turned out to be valid or there are no tests for inert ingredients.

4 b. EPA does not register pesticides on the basis of safety but does it on the supposition that the benefits outweight the costs.

5 c. Testing is not done on the full formulation of the pesticide except for three acute toxicity tests.

6 d. Certain important health damage is not tested for like nerve and immune system damages.

7 e. EPAs review of pesticide toxicity tests is less than stringent.

8 Further, soil testing has not comprehensively been done. For instance, 70% of the 45 chemicals on EPAs list of potential leaching pesticides into groundwater are herbicides or growth regulators. This includes some of the chemicals dealth with in this DEIS (like picloram, hexazinone, dicamba). Inhibition of hycorrizae in forest plants has not been studied well. Yet the FS gives very little analysis and discussion to these problems in the DEIS.

9 4) Because of all the data gaps revealed in the DEIS and Appendices the FS does not have enough information to do a risk assessment that has any chance of being accurate, useful, or scientifically valid. Using birds' acute toxicity to represent herptiles because of the lack of toxicity data on herptiles is just one of the distortions the FS must use in the risk assessment in order to take into account the data gaps. It would make more sense to be conservation and use a pesticide profile and other information to determine if herbicide use is appropriate than to depend on a flawed and totally useless risk assessment.

10 5) There does not appear to be a valid economic case for extensive herbicide use in forest management. A study (paper enclosed) has shown that no empirical basis exists for increased timber yields due to herbicide use. In addition this study questions the employment impacts form herbicide use which it says do not exist. Further, while overinflating the benefits of herbicide use the FS has also been greatly exaggerating the cost of manual methods. In fact the paper states that herbicide costs are many times higher than published figures and benefits are a fraction of those claimed. This DEIS must take this into account.

11 6) The entire format of this DEIS makes it very difficult for a reader to maintain any track on the comparison between the alternatives as well as the effects each alternative has. It would be nice if one alternative could be printed with all of its costs, benefits, effects, and impacts and mitigation together in one place in the EIS. The summaries do not do it since they are so distorted that they bear no resemblance to what the full text says. It would be far easier to read all the information on each alternative and get an overall view of the alternative than having to hunt through an entire document to read bits and pieces about the alternative in question. This could be done and still adhere to NEPA since discussion of all NEPA requirements would be done for each alternative.

12 7) This document is not an objective document which a decision-maker can decide an issue. In fact some parts of it (the water quality analysis for herbicides) seem rather condescending and arrogant and read like an excuse and justification for a decison already made.

13 8) This document fails to investigate the cumulative effects of all FS methods

3 The reregistration process begun in the early 1980's is virtually complete. Significant changes have been made to the pre-1980 registration data base during this process. This generalization is no longer valid when applied to this EIS.

4 The EPA has published the registration and reregistration procedures in its Hazard Evaluation Division's Standard Evaluation procedure series. Toxicological data -- both acute and chronic -- is a primary focus of the registration effort. Cost is never mentioned as a criterion for evaluating toxicity.

5 Modeling done in the EIS is used where it was felt that testing was insufficient to draw conclusions. See also response to comment 18 of this letter.

6 Neurotoxicity (and immunotoxicity) data is unavailable for most pesticides on the market at the present time. EPA does not currently require this data be furnished during the registration process since (in their written opinion) there is no reason to believe that it is relevant data except for certain specified groups of chemicals.

7 The EIS takes the position that EPA review of pesticide documentation is adequate.

8 Our analysis began assuming that every herbicide has potential to leach to ground water. See response to comments in Letter No. 70, Comment No. 3; and Letter No. 114, Comment No. 3. Effects on mycorrhizae are poorly documented, but effects on tree growth indicate that they are not damaged (appendix C, page C-8). See also response to comments in Letter No. 340, Comment No. 29.

9 See response to comment 18 of this letter. Where experimental data are unavailable, statistics and analogies are scientifically acceptable.

10 Section IV-C, expanded in the Final EIS, shows that herbicide use does improve timber growth and also meets many other, non-timber objectives. Selective application of herbicides favored in alternative G (Draft preferred) and modified G (Final preferred) is a labor-intensive practice similar to the manual methods evaluated. The cost data for all methods, given on pages IV-108 through IV-110 of the Draft EIS, are actual project costs for work done during fiscal years 1986 and 1987, not inflated or exaggerated costs. The data include labor, materials, handling, equipment, and direct project supervision. This type of Forest Service data, EPA-approved data, and articles in refereed scientific journals have been used in our analysis. The article you cite was published without any of these conditions being met.

11 See response to comments in Letter No. 50, Comment No. 1. This document is organized as recommended by the Council on Environmental Quality (40 CFR 2502.10). Thirty people commented on readability/understandability; two of these thought the document was poorly done, but the other 28 thought it was well done.

12 The EIS, especially chapter IV, uses all available relevant data and derives conclusions and estimates based on the best known facts.

13 The Draft EIS does assess cumulative effects of single tools over time and of multiple tools over time and space. Examples are: effects of prescribed fire (pages IV-76-77 of the Draft EIS) and mechanical methods (page IV-82) on soil, and of multiple methods on water (pages IV-91-95 of the Draft EIS).

(fire, herbicide, mechanical, manual, biological) as they relate alone and then as they relate to using more than one method at the same time and in combination over the life of a rotation in the National Forest and for centuries in the future. Thus the combined effects (synergistc) of several methods is never assessed as their use together relates to environmental impacts.

14 9) The issue of correct use of the methods of VM prescribed is never brouched. Standards can be set but implementing them is the big task. How can the FS ensure that all mitigating measures will be used? What is its plan to ensure environmental damages are minimized?

15 My specific comments will follow on the DEIS and Appendices. However my conclusion is to request the FS redo this DEIS. Drop the risk assessment and instead focus on alternatives which use IPM as a foundation for VM. Otherwise the documents you have prepared will simply be an expensive way of saying you do not know how to successfully manage the forest without spreading poisons on it. I no not believe this is necessary or makes sense.

Sincerely,

Brandt Mannchen
629 Euclid
Houston, Texas 77009
W713-640-4311
H713-861-7552

(Continuation of Forest Service response)

14 Mitigation measures and management requirements (chapter II, part E) are not optional. Following each (sometimes a group of two or more similar ones) is a paragraph explaining how effectiveness is measured and what monitoring occurs to test effectiveness.

15 See response to comments in Letter No. 279, Comment No. 1, and Letter No. 295, Comment No. 1, regarding Integrated Pest Management. See response to comment 18 of this letter.

The Draft EIS displays the effects of five different methods of vegetation management, of which herbicides is only one. In the Coastal Plain/Piedmont methods other than herbicides are projected to be used on 91 percent of the total acres treated in the preferred alternative G in the Draft EIS (page II-9); while herbicide use comprises approximately 9 percent of the entire vegetation management program. Furthermore, the determination of the most appropriate tool for a project must be made at the project level after site-specific analysis determines its suitability based on project objectives, species requirements, site characteristics, and effects on environmental elements such as soil productivity, vegetation diversity, wildlife, and threatened, endangered, proposed, and sensitive species. The requirement of site-specific analysis, mitigation measure number 1 on page II-35 of the Draft EIS, states that a reasonable range of alternative methods, including the use of methods which do not involve herbicides, will be examined and evaluated. Also, the Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

Specific Comments Concerning Vlume I, Vegetation Management in the Coastal Plain/ Piedmont, Draft Environmental Impact Statement

16 1) Page I-3. How will the FF plans incorporate changes due to this EIS? What public input will be allowed. It is my view that changes that exceed what this programmatic EIS covers can occur [redacted] FF with no other environmental review or public input occurring with the excuse that they are just following the Vegetation Management EIS.

17 2) Page I-5. This document unfortunately is very biased and can be seen to be this way starting at this pape. You are already making assumptions that people are simply misinformed about herbicides and that all they need is some FS information to resolve their concerns. The information is already there to show that there are problems even though many critical data gaps have not been filled yet. The public has lost faith in the FS and feels that it is no longer a credible generator of information.

18 3) Page I-7. The appendix with risk assessment does not answer the concerns about human health, wildlife, and ecosystem safety. There are huge data gaps and scientific uncertainty is not taken into account. Since the FS equates avian toxicity to reptile and amphibian toxicity the entire risk assessment is based on no hard factual information to make such extrapolations. The risk assessment is not a scientific finding by any means but is a poorly done assemblage of guesses and assumptions that would never stand up in the light of peer review in scientific journals.

19 4) Page II-1. The assumption that implementation of an alternative is not constrained by funding is totally unrealistic and must be replaced. In addition you must define reasonable and implementable so that the reviewer will know what you are talking about.

20 5) Page II-2. What is 3%/yr. of FF lands? You need to give this figure in acres for each alternative so the reviewer does not have to calculate all of this out. On Page II-3 it is obvious that a bias is already developing for herbicide usage An IPM program should be implemented with herbicide use as only a last, emergency alternative not a first use option.

21 6) Page II-4. Under Alternative C and other alternatives I do not consider scarifying, ripping, and shearing low soil disturbance methods. Please explain how you derived this, what criteria did you use, and how these were rated using what assumptions and research. These activities actively disturb the soil and make erosion inherently more likely to occur.

22 7) Page II-10. For all alternatives concerning rights-of-way maintenance the FS should contact the Nature Conservancy in Texas about its program with Gulf States Utility. At the Roy E. Larson Arid Sandilands Nature Sanctuary in the Big Thicket of East Texas they have managed the right-of-way with selective removal of trees that might interfere with electrical lines and allowed a maximum of low-growing vegetation. This alternative is economically competitive with mowing and herbicide use and allows a more diverse ecological community to develop in the right-of-way. Also prescribed fire is used which has allowed the rare Trailing Phlox to expand its numbers on the right-of-way. Enclosed is a copy of the article.

23 8) Page II-11. I protest! there is no alternative which is based on the principles of IPM (see enclosed paper). You essentially have variations of a similar alternative.

24 9) Page II-15. The Tree Crusher, what you call a self propelled chopper on Page II-19, is not a low soil disturbance tool. I have seen them in action and they move soil as well as tree debris when they operate. They compact and devestate soils.

16 The EIS is prepared to conform to the requirements of the National Environmental Policy Act. Chapter I, part A, explains that each forest has a Land and Resource Management Plan (which was prepared under 36 CFR 219). This EIS is to be implemented consistent with the goals and objectives found in Forest Land and Resource Management Plans. Plans set overall direction for managing national forests. The selected alternative from this EIS sets further direction on how vegetation is managed for the activities listed on pages I-1 and I-2 of the Draft EIS. Depending on which alternative is selected, Plans may need to be amended, especially regarding methods and tools alllowed and mitigation measures (standards and guides) applied. Amendments to Plans will be done through the Record of Decision for this EIS. Additional discussions regarding the relation of this EIS with Forest Land and Resource Management Plans can be found on pages I-1 through I-3 of the Final EIS. Also, more full disclosure of environmental effects will occur at the site-specific level.

17 Statements on page I-5 of the Draft EIS derive from comments submitted by over 800 people. These statements are not contrived or biased as accused, but rather resulted from an intensive analysis (content analysis) of all comments. It is the nature of issues to express contradictory concerns and desires (see chapter II, part F of the Draft EIS).

18 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." (40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier regulations. Thus, we have attempted to address both sets of regulations in our analysis.

Use of risk assessments is scientifically accepted, and ours has undergone extensive scientific review (Draft EIS, page V-7). Modeling is used in the Risk Assessment to project incomplete or unavailable data. While there are significant data gaps, modeling is displayed which shows estimates of the potential effects of herbicides on various environmental elements. When modeling was done we always made conservative (health and safety protecting) assumptions to fill data gaps. Since most of the models multiply one risk times another, we have actually magnified the estimate of risk far beyond what is probable in the field. Where meaningful comparisons could be made between available data, quantitative analysis was done. Where necessary, analogy was used to develop these estimates. Otherwise, qualitative estimates were made. The Risk Assessment looks at a range of scenarios, from highly probable (typical) to unlikely (maximum) to very unlikely (accidents). Sufficient information exists concerning herbicide applications to make reasonable estimates of potential exposures under each alternative. The

(letter continues on next page)

effects of those exposures are evaluated based on what is known about the toxicity of each herbicide-from previous accidental and controlled human exposures and from laboratory animal studies. This risk assessment method is widely accepted in the scientific community. The Risk Assessment is supported by background herbicide profiles including those found in USDA Forest Service Handbook 644. Where information was found to be insufficient to evaluate what effects might occur, conservative assumptions were made. For example, 2,4-D was assumed to present a cancer risk although EPA considers the available data to be insufficient to draw this conclusion. Acute toxicity testing on the full formulations is part of the available data on each herbicide. The chronic toxicity of the inert ingredients in each formulation is evaluated for those inert ingredients considered by EPA to pose a risk of health effects (Lists 1 or 2).

19 Draft EIS page II-1 assumptions relate to development of alternatives, not necessarily to implementation. The Forest Service agrees that different alternatives have different costs (table II-9 of the Draft EIS). Reasonable and implementable means that the Forest Service is legally, politically, and physically capable of implementing the alternative.

20 The information requested is in the Draft EIS: (1) at the end of the description of each alternative in part B of chapter II, (2) in table II-5, and (3) in the summary description of each alternative in chapter IV. The summary (pages iii through xvi) also lists acreage figures. See response to comments in Letter No. 279, Comment No. 1, and Letter No. 295, Comment No. 1 regarding IPM.

Additionally, tables are provided in the Final EIS which display for each alternative the projected acres by method for each activity listed on pages I-1 and I-2 of the Draft EIS.

21 Mechanical tools are classed for soil disturbance potential on page II-15 of the Draft EIS. Rationale for these classes, with references, is on pages IV-79 to IV-82 of the Draft EIS. Miller (1984) found contour ripping to reduce erosion by trapping eroded soil behind the berms.

22 Mitigation measure number 18 on page II-42 of the Draft EIS encourages the forests to do just what you recommend.

23 Please see response to comments in Letter No. 279, Comment No. 1, and Letter No. 295, Comment No. 1 regarding IPM.

24 Some soil is exposed and moved a few inches, but disturbance is low. Soil compaction, erosion, and nutrient displacement are minimal (pages IV-79-82 of the Draft EIS) if mitigation measures (pages II-46 to II-48 of the Draft EIS) are used.

25 You also do not combine the effects of several of the methods of vegetation management so that a total picture is given of the ecological damage. In addition you have not shown any information that using several methods in the same area at the same time does not lead to synergistic damages. After all in East Texas the Tree Crusher did its work and then the heliotorch napalmed the forest and caused and huge burn that does not mimic what nature does even in wildfires.

26 10) Pages II-16 and 18. Rippers and piling tools also disturb soil. They can disturb the soil structure and fauna in the area that is left after cutting. Piling tools frequently are not used correctly and in fact do penetrate the soil. You need to acknowledge operational problems and address the effects of these and how they can be controlled.

27 11) Page II-23. For glyphosate you say that it persists in soil for two months or less but some research indicates that it can last for two years.

28 12) Page II-35. A "reasonable range of alternative methods" is totally different from what CEQ requires which is to look at all reasonable alternatives. A full EIS is needed for each site specific area to be controlled. An EA is not specific enough in what it must require as CEQ has not clearly given as much guidance as on EISs. This EIA does not address the differences between Texas and other states NF or in differenct areas in Texas NF so it follows that such a comprehensive and detailed accounting is needed and can only be done by site specific EISs.

29 13) Page II-37. Coordination should be initiated with FWS and the public before determination of mitigation since they may be able to help on other ways to mitigate or disagree on whether mitigation proposed will reduce damages. Just because BMPs are required does not mean water quality will necessarily be protected. You must tell if water quality will be exceeded even with BMPs. Recent court cases have shown in Idaho that just requiring BMPs does not mean water quality is protected.

30 14) Page II-39. A five foot buffer for channel stability will do nothing to protect a stream. Erosion and siltation will continue. You need to keep slash out of the buffer zone too and not just out of the stream. If it is in the buffer zone then there is a good chance that during a flood it will get into the stream. Overall the mitigation measures you prescribe are too general and the reviewer cannot get a picture of how the forest will be protected. What kind of monitoring will be done? What criteria will be used and how were these derived?

31 15) Page II-44. Using lakes or streams as fire breaks defeats the purpose of using buffers around these to reduce siltation.

32 16) Page II-45. I looked in the reference section and found no Sandberg and Ward 1983. I did find a 1981 citation though.

33 17) Page II-47. Not all corridors are kept clear of debris. Recently I have been on hiking trails where activities left felled trees on the trail.

34 18) Page II-48. How will public input into site specific environmental analysis work? Can the public get on a list to receive these documents? What will be the comment time period accorded the public?

35 19) Page II-49. Since herbicide applications can drift for miles and insects in the area may pick up residues which Gray or Indiana Bats will be exposed to when they eat these insects the 50-300 foot buffers are insufficient to protect these and other endangered species. Bats fly alot further than 300 feet in a night hunting for insects.

25 This is not correct. For example, research that specifically addresses several method combinations and their effects on vegetation, as well as human health and safety, and wildlife were analyzed and displayed on pages IV-24-25, IV-38-40, IV-48, IV-59-60, and IV-67 of the Draft EIS. None have been found to lead to synergistic damages. When prescribed slash burns are conducted with mitigation measure number 1 on page II-43, and numbers 3 and 4 on page II-44 of the Draft EIS in place, soil productivity is effectively protected. See also the discussions on fire severity in slash burns on pages IV-73-74 of the Draft EIS. Additionally, "natural" fires can occur under uncontrolled conditions (i.e. without any mitigation measures in place), when the likelihood of site damage is very high.

26 See response to your comment 21. A mitigation measure has been added to the Final EIS (page II-55) to promote the proper application of piling. Monitoring of project plan reviews and post-project evaluations assure that all applicable mitigation measures are included in the project design and that tools are being used correctly.

27 Reference to 2-year persistence of glyphosate in soil is accurate for hot, arid soils. Persistence (half-life) of greater than 2 months is not realistic in the majority of the Coastal Plain/Piedmont.

28 Mitigation requires site-specific analysis. This analysis may indicate the need for an EA, EIS, or categorical exclusion depending on its findings. Not all site-specific projects need EIS's or even EA's.

29 Mitigation measure number 3 on page II-36-37 of the Draft EIS requires prior consultation with the Fish and Wildlife Service. Regarding BMP's, see response to comments in Letter No. 265, Comment No. 5, and section IV-G of the Draft EIS.

30 See response to comments In Letter No. 52, Comment No. 21. Since floods are depositional events, slash in the floodplain is rarely moved back into the channel. The mitigation measures are minimums to be applied over the whole Coastal Plain and Piedmont, a proper approach for a programmatic EIS like ours. Monitoring details are left up to the demands of each site.

31 See response to comments in Letter No. 270, Comment No. 14.

32 Inconsistencies between text and reference section have been corrected.

33 The operational problem reported here should be brought to the attention of the appropriate District Ranger.

34 See 40 CFR 1500.2(d), 1501.4(e), 1501.7, 1501.8, 1502.9, 1502.19, and generally 1503. The nature, timing, and extent of public involvement varies from project to project. Every forest maintains a mailing list for parties wishing to actively participate in forest management.

35 The assumption that herbicides drift for miles is inaccurate in view of the technology required by this EIS. Data presented in the Risk Assessment suggest that drift is of minimal concern when applications are made using large droplets during favorable weather as required by the mitigation measures on pages II-48 to II-54 of the Draft EIS. The additional buffer mitigation further reduces potential for effects from drift. The Risk Assessment assumes that a realistic proportion of the bat's food was contaminated, and this resulted in no reasonably foreseeable significant adverse effect.

36 20) Page II-50. Certified pesticide applicators do not means a thing in Texas as we have had problems both in agricultureal applications and structural applications with persons or companies who were supposedly certified to apply pesticides. You keep taling about large droplets but you never say what size these are. Give the size of droplets from each nozzle type that you use.

37 21) Page II-55. The risk level for health and safety that you present is worthless. We need something else other than just a guess. Your calculations are not conservative but are developed to justify using herbicides. You do not have enough data to do justice to a risk assessment.

38 22) Page II-56 and 57. Table II-3 means nothing since you do not give maximum possible use. You say yourself in the risk assessment appendix that herbicide treatment levels may increase beyond what is in this EIS.

39 23) Page II-64. Table II-8 is biased. You do not have alternatives that use IPM or that provide for minimal vegetation management except for those that deal with endangered species. You hardly vary fire use at all. On Table II-6 on page II-62 fire use ranges if the no action alternative is excluded, from 93.3% to 89.0%. You show nothing here to explain how you ranked the alternatives. What criteria did you use and how were they derived?

40 24) Page II-67. On Table II-9 you do not show how the cost/acre figures were derived and what assumptions and criteria were used and how these were derived. The lowest coast alternative you show, alternative C at $14.40/acre, is only 10.42% lower in cost than the highest cost alternative, alternative F. There really is very little difference in cost between all alternatives so this should not influence decision much.

41 25) Page II-68. For Alternative A you say the risk of wildfires will increase but gopher tortoises will decline because of lack of fire. This does not make sense. In addition you seem to think the loss of quail is not good but you fail to show that quail is a very common bird and that there still will be quail on NF in disturbed areas. You also fail to realize that as forests mature they tend to retain moisture and therefore the number of really harmful fires that occur will be reduced over time. You also seem to equate any fire that occurs in these areas as being an extremely damaging wildlife, which you do not define, but which I assume you mean a crown fire but do not assume that many of these so-called wildfires will be creeping ground fires that will be good for the area. You also never say how much additional employment you are talking about in vegetation management for this or other alternatives.

26) Page III-10. Fire does not have to be excluded from wilderness.

43 27) Page III-13. Sometimes streamside protective zones are ignored. You cannot assume that the endangered species that supposedly will be protected by buffer zones actually will.

44 28) Page III-14. You need a new list of Texas state protected species. Among those you do not list that are protected include the Peregrine Falcon which is on the federal list and exists in Texas and migrates over the Texas NF. There also are state protected Alligator Snapping Turtle, Texas Horned Lizard, Northern Scarlett Snake, Louisiana Pine Snake (not Northern Pine Snake), Ivory-Billed Woodpecker, Paddlefish, Black Bear, Arctic Peregrine Falcon, and Wood Stork that may be in Texas NF. Enclosed is a copy of the latest Texas protected species list.

(Continuation of Forest Service response)

36 Our rigorous Pesticide Applicator Training and Certification program ensures that Forest Service crew supervisors and Contracting Officers' Representatives have the latest and best knowledge of safe application principles. Chapter 2 of the Risk Assessment contains a brief discussion of nozzles and droplet sizes. Papers by Yates, Akisson, and others (cited in the Risk Assessment's references) should be consulted for specifics.

37 The data we found was by itself inadequate for the purposes of assessing risk. However, it was adequate to form the basis for realistic modeling, which was done in the Risk Assessment using conservative assumptions throughout.

38 Table II-3 on pages II-56 and II-57 of the Draft EIS compares alternatives analyzed with the issues that were identified from public involvement (pages I-4 through I-7 of the Draft EIS). It was not developed to provide acre comparisons. Tables II-5 and II-6 on page II-62 of the Draft EIS as well as the additional tables provided within each alternative in the Final EIS display projected acres by method for each activity the EIS covers. These acres are only projections used to evaluate environmental effects quantitatively. During implementation, the actual program may vary from these projections.

39 Please see response to comments in Letter No. 279, Comment No. 1, and Letter No. 295, Comment No. 1, regarding IPM. See section II-B for descriptions of alternatives B and C, both treating more than T&E, both representing less than current levels. On page II-59, paragraph 2 (Draft EIS) readers are cautioned about using table II-6 alone and not using table II-5. Table II-5 shows that acres treated by fire vary substantially. Alternatives are not ranked so there is no explanation. Also see response to comments in Letter No. 150, Comment No. 1.

40 Introductory paragraphs to part G of Chapter II in the Draft EIS clearly inform readers of the relationship between chapters II and IV of the document. To find cost derivations, please see chapter IV, pages IV-107 to IV-110 of the Draft EIS. See also response to your comment 10.

41 Gopher tortoise is cited as an example of a fire-dependent species that would be expected to decline if fire is unavailable as a tool to manage habitat. Although wildfires are expected to increase in the absence of fuel-reduction burning, total acres burned is projected to be less than acres currently prescribed-burned. The wildfires will not necessarily occur in areas of suitable endangered species habitat, and will often burn more intensely resulting in damage to habitat of some species such as red-cockaded woodpecker. Quail was used as an example of a species that would decline, not disappear, in the absence of management.

42 The interdisciplinary team agrees and can find no reference in the Draft EIS which implies that fire must be excluded from wilderness.

43 This wording and the table have been changed in the final document to reflect the possibility of risk to all species.

44 These lists have been updated since the Draft EIS. Species identified in appendix E in the Final EIS reflect the most current status of threatened, endangered, and proposed species as designated by the U. S. Fish and Wildlife Service in the Federal Register which are known to occur on national forest lands in Texas. Species known to occur on national forest lands in Texas which are identified by the Forest Service as sensitive also are shown in appendix E of the Final EIS. As the National Forests in Texas update their list of sensitive species based on coordination with the appropriate State agency, this appendix will be updated.

45 29) Page IV-4. The problem is the total formulation is not tested and often the inert ingredients are more toxic than the herbicide. Your section on inert ingredients in Appendix A is very perfunctory and not reassuring. In essence the EPA has done a poor job of regulating and the chemical companies are loath to tell what ingredents they use.

46 30) Page IV-5. You need to look at morbidity effects too.

47 31) Page IV-6. With all your estimates you use to arrive at risks (dose estimate, exposure estimate, movement estimate, etc.) you never give the accuracy of your risk analysis and the accuracy of each model or estimate used (the percent error). This must be done as well as tell the public how accurate the data base is so that they will know how reliable and valid the method that you use is.

48 32) Page IV-6. Even when properly clothed, pesticides can get inside workers clothes and onto their skin. Protective clothing does not necessarily reduce all expsure or dose. You need to discuss this problem in detail.

49 33) Page IV-7. You never really take into account sensitive persons and how many (what percent) of the population consists of sensitive individuals. Also people exposed to chemicals can become sensitive through repeated exposures when there is no history of sensitivity.

50 34) Page IV-7. Many of the standards used are too lenient. By simply accepting them as gospel you in fact are making avlue judgement. I do not believe the data is worth a dam or is acceptable. You simple accept it. This is not the way to do an unbiased EIS. Many of those standards have been shown to be unacceptable. I object!

51 35) Page IV-8. Human toxicity data needs to be looked at more. What has happened occupationally, accidents, farmworker exposures? Your data gaps here show why the risk assessment is very controversial and not accepted by all in the scientific community (Page IV-10). With the cisions that are being made you are causing the public, wildlife, and environment to be exposed to hazardous chemicals. Good and services will not be reduced since there are alternatives to herbicide use. Here on Page IV-10 you are requiring the public to pay the cost in experiments on their health. You talk about relatively non-persistent herbicides. A several year half life has been shown in some. That is not relatively non-persistent to me.

52 36) Page IV-13. Formulation changes occur all the time. How will the FS ensure that the inert ingredients stay the same and the toxicity of the herbicide does not increase due to formulation changes. In my view no list three inert ingredient should be used since nothing is known about them and they have not bee tested.

53 37) Page IV-14. It is absolutely incorrect to say no member of the public should be affected by these herbicides. Realistically people will be affected. You are trying to say you will perfectly apply these substances and that no people will be at risk.

54 38) Page IV-20. It seems as if you are trying to minimize the cancer risk here by comparing it to x-rays. You never say anything about other scenarios where risk will be greater. You are biasedfor herbicide use.

55 39) Page IV-23. Why does not the FS use the EPAs program that has been ongoing for years which measures human tissue for various toxic compounds? Synergistic experiments have not been done (see Page IV-9) so how can you say, "herbicide mixtures ... have not shown synergistic effects in humans ...". Almost no research has been done on this. You are fabricating a response.

45 Data about inert ingredients has been difficult to obtain. In table 3-8 of the Risk Assessment we identify the inerts found in the various formulated products which are proposed for use. Only kerosene in seen to pose reasonable foreseeable risk of significant adverse effects.

46 "...morbidity effects..." is an undefined category of effects. In the EIS we disclose effects within generally accepted categories of acute toxicity, chronic toxicity, kidney, liver, and other organ effects, temporary and permanent eye and skin diseases, teratogenic, mutagenic, and oncongenic effects. Within these generally recognized categories, we disclose many effects which relate to morbidity.

47 Data used were rarely statistically developed but most generally were field estimates. As such, it would be unrealistic -- and generally misleading -- to place confidence parameters on the data. Replicated laboratory data is parametric. However, considering the non-parametric data to be the lowest common denominator in our analysis, the non-parametric format was generally followed.

48 Mitigations to minimize adverse effects of accidents are such that this occurrence has a low order of probability. Adequate discussion is given to this problem when disclosing the accident (worst case) situation in chapter IV of the EIS.

49 We have been unable to determine the percentage of the population considered to be "sensitive" or "hypersensitive." Statistics do not appear to exist (although estimates have been made). No scientific data has been reported indicating that sensitizing of previously non-sensitive individuals is a reasonably foreseeable adverse effect from the use of the 11 herbicides evaluated.

50 No scientific data is presented to support the statement that (unspecified) standards are too lenient. Facts and modeling disclosed in the Risk Assessment and the EIS indicate that the mitigations proposed are adequate to protect humans and their environment from reasonably foreseeable adverse effects.

51 Data presented in the EIS indicates that with proper mitigations, the herbicides analyzed in this EIS can be used in a manner which poses less risk to humans and their environment than many of the tools which have been considered as having acceptable impact on the environment. Ten of the herbicides proposed for use in southern forests have been shown to have half-lives of less than 2 months IN SOUTHERN FORESTS. Some data does exist indicating longer persistence in other environments; however, it is not relevant to this analysis.

52 Discussion on page II-22 of the Draft EIS (beginning with "Prior to operational use...") answers this question. EPA has indicated that list 3 ingredients are chemicals which neither pose toxicological concern nor are they reasonably considered to be toxic products. They have a low priority for testing based on this categorization. We have accepted EPA's evaluation of the inerts where no other data was available.

53 Within the analytic framework disclosed in the EIS (which is the proper reference for this document), no member of the public -- including sensitive individuals -- will be affected by the herbicides or additives proposed to be used at Region 8's typical rates.

(letter continues on next page)

54 We fail to see bias. Data is presented for the worst case and compared to a typical risk from a single x-ray. This is a very conservative comparison. Typical use data (Region 8) would make the discrepancy significantly greater -- favoring herbicides even more.

55 The Forest Service's herbicide program has been ongoing for 25+ years. During that time, not one scientifically documented case of synergism has been reported within the program. Not one of the 11 herbicides evaluated has shown scientifically reproducible significant adverse synergistic effects when used in an appropriate manner.

56 40) Page IV-23. I do not agree that herbicides do not persist from application to application. If an area is sprayed and the vegetation mangement that is desired is not achieved won't that area be sprayed again. Many tests for persistence were done in agricultural fields and not forest environments. Even so some tests show a persistence that is much greater than expected.

57 41) Page IV-24. There is not alot of data on the constituents of slash burns treated with herbicides. Why in the picture on Page IV-24 is the worker allowed to not wear a protective mask. This allows them to breathe more carcinogens and other toxic compounds.

58 42) Page IV-25. TLVs only measure healthy populations of workers and are for acute episodes and not long-term chronic effects. They are not applicable to repeated exposures to smoke. The EPA, Washington state, and Oregon are very concerned about burning wood in stoves which is done much more efficiently than slash burns. There is no assurance that burning will not occur before 30-100 days after herbicide treatment and that severesoil damage will not occur.

59 43) Page IV-26. Accidents are not followed well to determine what the long-term effects are after years of use. The symptoms of herbicide poisoning are very mundane and often are like the flu so they will often be missed and not diagnosed correctly as herbicide poisoning. Doctors have very little training in pesticide poisoning and often do not know enough to diagnose correctly.

60 44) Page IV-35. Annual burns will not give the greatest variety and number of plant species when you speak of forest dependent species and not just more common species that can be found many other places.

61 45) Page IV-41. Broadcast distribution does not achieve uniform distribution. Often overlapping occurs and nontarget areas are hit.

62 46) Page IV-44. When you say repeated applications of herbicides do not cause permanent effects on succession you ignore that some species may disappear after repeated herbicide, fire, and mechanical disruption. You need to take into account the effects of all vegetation control together. Where are the documents which look at these long-term vegetational impacts due to all types of vegetation control alone and in combination?

63 47) Page IV-47. If vegetation management occurs after habitat already is substantially altered by timber harvest or regeneration then how does this impact on the resources. You need to talk about cumulative impacts.

64 48) Page IV-49. With no exposure information on most wildlife it is ridiculous to extrapolate with domestic fowl, etc. and use birds as representing herptiles. See Pages IV-52 and IV-55 for this totally flawed procedure. In addition on Page IV-56 you admit you do not have chronic studies on wildlife.

65 49) Page IV-61. If honeysuckle increases will this also mean that additional treatment will have to be done since it competes and overwhelms seedlings and is an aggressive nonnative plant (Japonese Honeysuckle).

66 50) Page IV-63. There is no evidence that wildlife is not harmed by smoke since since there are few studies on carcinogenisis in wildlife as it relates to smoke.

67 51) Page IV-68. Except for some lizards and a few snakes there are not alot of tree dwelling reptiles. They do use snags and downed logs alot though.

68 52) Page IV-69. Buffers for Alligators, etc. do not necessarily protect them since

56 Tests relevant to southern forestry indicate that persistence is not a potential problem. Areas are rarely retreated in the same season as the original treatment. A year delay is 6 times the longest half-life reported (except for tebuthiuron). See response to comments in Letter No. 114, Comment No. 3.

57 Discussion of the constituents of smoke from burning untreated vegetation is to be found on page IV-97 of the Draft EIS. No significant additional risk results from herbicides when burning treated vegetation (chapter II, pages 24-25, Draft EIS). The forester in the picture on page IV-24 is performing a relatively low-risk activity.

58 The TLV's used were postulated on an 8-hour x 5-day work week for a worker's career. This long-term, chronic TLV does in fact apply to repeated exposures. In fact, acute TLV's (which are generally higher than chronic TLV's) may be more appropriate to firefighting which is a sporadic job with long periods of non-exposure and recovery between exposures. Dost (1986), referenced in the EIS, estimates health risks from residential wood burning to be many times higher than from prescribed fire, due to more chronic exposure under less ventilated conditions. Prescribed fire will not cause serious soil damage due to mitigation measure numbers 3 and 4 on page II-44 of the Draft EIS.

59 Unspecified long-term effects are not expected from a situation which is non-threatening even on the day of application. See response to your comments 45-48.

60 The research studies cited in page IV-35 of the Draft EIS as well as the long-term study by Lewis and Harshburger (1976) cited on pages IV-36 and IV-37 of the Draft EIS found this to be so.

61 When broadcasting herbicides, it would be best to achieve a perfectly uniform coverage. In the real world, this rarely happens. Analysis and mitigations for broadcast application refer to average (per acre) rates. Mitigation measure numbers 2, 15, and 25-29 on pages II-48, II-51, and II-53 of the Draft EIS reduce risk of off-site application, as well as movement, onto nontarget areas. Monitoring of project plan reviews, on-site supervisory controls, and post-project evaluations assure that these mitigations are included in project design and that nontarget areas are unaffected by broadcast treatments.

62 If "disappear" means that certain plants are made extinct, or that they lose their capacity to reinvade an area when treatment is discontinued, we do not agree. Available data suggests that normal floristic patterns are reestablished in a relatively short time once treatment is discontinued. An exception to this generalization might be areas which contain threatened, endangered, or sensitive species -- and special mitigations are included in chapter II to protect these areas.

63 Throughout chapter IV of the Draft EIS, short-term, long-term, and cumulative effects are discussed. For the section you specifically cited, examples can be found on pages IV-48, IV-56, and IV-59 of the Draft EIS.

64 See response to comment 18 of this letter. Analogy is a standard scientific method used to predict effects where there are incomplete or unavailable data. Modeling of effects from known information was done in all cases where scientific data were unavailable. Risks identified in this process are disclosed and considered in our analysis.

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65 Depending upon specific site conditions, such as site productivity and initial amounts of honeysuckle present, additional treatment of honeysuckle vines may or may not be necessary. Timber stand improvement projects, in areas where large amounts of honeysuckle vines occur, can be designed to retain sufficient ground shading in order to avoid aggressive expansion of the vine. Unless the increase threatens the survival of the stand, additional treatments may not be recommended as this is an important year-round food source for deer as well as a winter forage species for cattle; and it provides food and cover for quail, turkey, and many songbirds.

66 A very thorough search of the literature did not reveal any findings to indicate that smoke presents a hazard to wildlife. To the contrary, numerous studies indicate that most species in the Coastal Plain/Piedmont are well adapted to periodic fires and the accompanying smoke.

67 Agreed.

68 See response to comment 43 of this letter. Each national forest is responsible for implementing forest plan standards and guides and mitigating measures in this EIS. Compliance is assured through periodic monitoring as required by NFMA and NEPA.

the buffer zones often are ignored or violated. How will you ensure that their integrity is maintained?

69 53) Page IV-72. Gopher Tortoises may also be harmed by copping and herbicide use if they are caught out in the open.

70 54) Page IV-78. It is inappropriate to use burning information from Autralia and other areas and try to apply it here. You need studies in the south.

71 55) Page IV-79. I do not believe piling does not result in some soil loss if 90% of the slash and 50% of the litter and duff are moved. Certainly some soil will be disturbed and the amount depends on how good an operator you have.

72 56) Page IV-83. There would be effects by herbicides indirectly on physical properties like soil aeration is soil biota, which assist in aerating soil, are harmed by herbicides.

73 57) Page IV-88. You say nothing about EPAs potential leacher list of herbicides. A 100 foot buffer around a water source will not stop spraying if it is done on the aquifer recharge area. No spraying should be allowed in the aquifer recharge zone.

74 58) Page IV-90. Please spell out the mitigation measures for cattle grazing that you intend to you. You just give an ambigous phrase here that means nothing.

75 59) Page IV-96. On Table IV-17 you never show how you derived these figures and how the entire analysis was done. Please do so.

76 60) Page IV-96. Herbicide spraying emits significant gases and particulates (aerosols) into the air and heavy equipment usage in small localized areas puts heavy concentrations of dust and diesel fumes into the air.

77 61) Page IV-97. Wildfires do not emit chlorinated hydrocarbons from burning of herbicide sprays where such herbicide use is not done. You are assuming wildfires are inherently dirtier burning. That is not the case. Many lightning fires are creeping fires that do not emit pollutants like crown fires. You lump all wildfires together and try to make prescribed burning look good by viasing wildfire effects. Remember if you treat all wildlifres the same then you must do the same for prescribed burns so that slash fires are included with duff burning fires. Your risk assessments for prescribed fire for cancer are as bad as your health risk assessments on herbicides. You say noting about dioxin formation and other poisonous gases that can result from slash burns.

78 62) Page IV-99. Major local effects are probably much greater than simply visibility reduction on highways. The con entration of particulates with cancinogenic matter in them is indeed cause for concern especially for people who live adjacent to NF lands and who use NFs. That is why EPA isnconcerned about woodburning stoves which are more efficient burners than slash or other fires.

79 63) Page IV-101. You are ignoring the cumulative effects that fires have on the Ozone standard when you say there are insignificant regional effects on air quality.

80 64) Page IV-102. Prescribed fires can have a cumulative increment on the Greenhouse effect by release of CO2. Your emission setimates contecories (pine-light brush) do not correlate to ecological vegetative communities (pine-hardwood) so it is difficult to understand what you are taling about.

69 Landers and Buckner (1981) reported on effects of heavy equipment on gopher tortoises in Georgia. They found that mortality from equipment was rare, perhaps due to the "pronounced 'hearing' ability of this species." They also reported that although double-chopping collapses the upper portions of tortoise burrows, the animals normally are able to dig out. See response to comments in Letter No. 272, Comment No. 11.

70 There are no studies in the South. The data from other areas were used with some adjustment for known differences in fuel and fire regimes. If this were not done, no estimate of the impact of slash burns on soil productivity could have been made.

71 Operator proficiency is very important. Use of our mitigation measure for piling (page II-56 of the Final EIS) should ensure that, in most cases, exposed soil will be less than 20 percent of the area and very little soil will be moved 1-2 feet at most. This is opposed to raking where much soil is moved to the piles or windrows. Recent experience shows that piling can successfully meet our criteria at least 90 percent of the time.

72 These effects are very unlikely. See response to comments in Letter No. 6, Comment No. 1.

73 Our analysis began assuming that every herbicide has potential to leach to ground water. See response to comments in Letter No. 70, Comment No. 3.

74 The mitigation measures for grazing as a biological control method are located on page II-54 of the Draft EIS. The chapter IV text in the Final has been revised to include the location of the mitigation measure in chapter II.

75 An explanation of the modeling that produced these numbers has been added to this section in the Final EIS.

76 These effects are analyzed in draft appendix A (page 2-11) and section IV-B (human health and safety). Our analysis does not confirm your assumptions.

77 Emission of herbicides by burning is analyzed in appendix A (pages 4-61-63) and section IV-B (human health and safety). Data do show that wildfires emit more smoke per ton of fuel consumed (Draft EIS page IV-102) since more smoldering occurs. Our risk assessments represent the state-of-the-art by taking the analysis as far as is scientifically defensible and covering the full range of effects on the widest array of species yet evaluated. Gases are covered on pages IV-97 to IV-98 of the Draft EIS.

78 Page IV-99 of the Draft EIS includes populated areas near the fire as being affected locally. By the time smoke leaves the burn area, health effects of gases are rendered insignificant by dilution and effects are limited to respiratory and visibility impairment from particulate matter. This section has been revised for clarification in the Final EIS.

79 In the Final EIS, this section now addresses effects on the ozone layer.

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80 CO_2 is the most abundant gas produced by wildland fires, but amounts from prescribed fire are too small to affect the global CO_2 balance. In the Final EIS, this section has been revised to include these points. Alternative A, with no prescribed fire, would produce the most CO_2 (table II-8 of the Draft EIS). Fuel groups are defined on page IV-102 and relate back to pages III-24-25 of the Draft EIS.

81 65) Page IV-103. You again are trying to make all wildlfires shound bad. There are different types of wildfires like there are different ytpes of presecribed fires. More mature forests will generally retain more moisture and reduce fire vulnerability due to more shading and less material to burn (fewer grasses, herbs).

82 66) Page IV-105. Since vegetation management effects have not been studied in great detail for long periods of time on all vegetation areas the crhonic effects are not known.

83 67) Page IV-105. You say that prescribed fire can creat vistas and views by clearing out understory but what you don't say is that this is what nature does as trees mature in many area. On Page IV-106, biological treatment can cause erosion, bare spots, trampling, compaction of soil, etc. This is very noticeable.

84 68) Page IV-109. On Table IV-18, how were these cost derived. What criteria was used and how accurate are they?

85 69) Page IV-111. Your descriptions of alternatives here are atrocious. Under Alternative A you talk about more noxious weeds. Actually there would be less since there would be a gradual shading out of these types of plants. This option will have more not less mid to late successional hbiatat. This type of mature forest is known for its downed logs and the natural rate of tree fall will creat all the gaps needed to perpetuate the area and provide logs for wildlife. Soil productivity will increase in a forest like this since more humus will be made and soil will be protected from raindrops by a canopy. Parklike areas will also increase because of the shading out of vegetation below the canopy as trees mature.

86 70) Page IV-113. Under Alternative B you say that endangered species will not recover. I very much disagree since depending on the species there will be a more stable environment with fewer human distrubances and more nature disturbances taking over. Organisms are adapted to the nature disturbances but not to our technology.

87 71) Page IV-117. Under Alternative D you say the public's safety is not affected. It must be somewhat by use of herbicides. On Page IV-119 you say there will be occasional power outages. This is ridiculous! A judicious cutting program in rights-of-ways will take care of any threats to power lines.

88 72) Page IV-122. For Alternative F again you keep emphasizing deer and turkey. Game animals are not the be all to end all. There are nongame species too but you seem to concentrate on game species. Why not use ROW as grasslands to increase the ecotonal effects?

89 73) Page IV-129. Will the FS implement a research program to do this needed research so it can better manage the forest? This should be a requirement of this EIS.

90 74) Page IV-131. There are a great many conflicts between the wildlife agencies and the FS and the public. Conservation groups are not happy with FS management. Herbicide spraying is highly controversial yet you do not even mention all of these things. This is abysmal underreporting.

91 75) Page IV-132. Alternative A has periodic disturbances. There is windthrow, tornadoes, hurricanes, fires, ice storms, floods, erosion, etc. You do not seem willing to acknowledge how a natural ecosystem works with natural disturbances.

81 Allowing pine forests to mature without prescribed fire will cause a major fuel buildup (Draft EIS page IV-103). Mature forests have a cooler and moister ground surface than open areas on the average, but severe wildfires occur during droughts when all fuels are relatively dry. Under these conditions, the high fuel loads in the unmanaged mature forest greatly increase risks of catastrophic conflagrations that are nearly impossible to suppress. Witness the Yellowstone fires of 1988.

82 There is no discussion of chronic effects on page IV-105 of the Draft EIS; however, effects on vegetation over the long term have been studied and are discussed (with references) in chapter IV, pages IV-30 to IV-46 of the Draft EIS.

83 Stand understories sometimes do open up naturally, but remain dense on many highly productive sites if fire is excluded. You are correct that the heavy grazing required in release projects would expose bare and compacted soil that would have visual impacts. In the Final EIS, section IV-K has been so revised.

84 As explained on page IV-108 of the Draft EIS, most costs in table IV-18 are from actual Forest Service figures over a two year period. Other costs are noted with an asterisk and table IV-18 is appropriately footnoted showing a study by Watson, Straka and Bullard (1987). See also response to comment number 10 of this letter.

85 Results of the analysis conducted for this EIS indicate effects as described on page IV-111 of the Draft EIS. The principal toxic weed to which forest visitors might become exposed is poison ivy, which in this alternative becomes more prevalent.

86 Even under alternative B, a "natural" environment will not result. Endangered species will exist in a world very different to the one in which they evolved and will be subject to many adverse factors not related to vegetation management. Because of limited vegetation management in this alternative, known populations of endangered species are maintained, but recovery is not likely.

87 On page II-5 of the Draft EIS describing alternative D, please see the following: "Herbicides are not used." Power outages are a reasonably foreseeable significant adverse effect of discontinuing herbicide treatments in some areas of the Coastal Plain or Piedmont. Kudzu and other fast growing weed species can not be controlled adequately using normal cutting methods.

88 Deer and turkey are used as examples. Many other species are affected as well. Please refer to pages IV 61-61, IV-66, and IV-68 of the Draft EIS for a discussion of ROWs.

89 See response to comments in Letter No. 14, Comment No. 2; and Letter No. 268, Comment No. 2.

90 The section "Possible Conflicts With Others" (chapter IV, pages IV-130 to IV-132 of the Draft EIS) is not intended to air every possible disagreement between the Forest Service and others. It is written to be responsive to 40 CFR 1502.16(c).

91 Floods have been added to the list of natural disturbances on pages IV-110 and 111 of the Draft EIS. Effects listed on page IV-132 of the Draft EIS, however, are accurately described.

92 76) Page IV-133. Your sections on irreversible and irretrievable commitment of resources and short-term uses and long-term productivity are totally inadequate. For instance you mention that some endangered splants occurring on NF may be lost but you do not say which ones and which alternatives will result in this effect. In addition you do not discuss the fhort-term uses and long-term productivity as it relates to the entire EIS just given. You need some actual analysis here on what will happen and what the trade-offs are.

93 77) Page V-8. My name is mispelled. It should be Brandt Mannchen. In addition I never stated to anyone in the Forest Service that I was representing the City of Houston. I do not and request that the change be made which lists me as a private citizen only!

94 78) Page VI-2. I never received a card in 1987 asking if I wanted a draft risk assessment. As a result I had to call long-distance to get one when the document came out.

95 79) Page VI-4. Have the new Dow Chemical tests on triclopyr dermal penetration rates been peer reveiwed? How do you know the results are valid when EPA and others have not had time to look at and approve these tests?

92 The section on irreversible commitments of resources on page IV-133 of the Draft does state that alternative A may cause some plants to be lost. In the Final EIS, this discussion has been revised, as has the one on short-term uses and long-term productivity. More detail is found earlier in chapter IV of the Draft EIS. This EIS makes no irreversible or irretrievable commitment of resources. This EIS displays the projected effects of vegetation management for the activities listed on page I-1 and I-2 of the Draft EIS. The irreversible or irretrievable commitment of resources will occur at the site-specific level and will be accompanied by site-specific analysis that discloses the environmental effects.

93 These are mistakes and corrections have been made in the Final EIS.

94 The card referenced was sent bulk-rate, thus, if undeliverable was not returned. When EIS documents were mailed to you, they returned as undeliverable due to an address change. A new address was obtained and documents were remailed. The team is evaluating other than bulk-rate mailings for the future so as to avoid these kinds of problems.

95 New discussion included on page IV-3 of the Final EIS states that triclopyr dermal penetration data is from a prepublication (peer reviewed) accepted-for-publication manuscript.

Specific Comments Concerning Volume II, Appendices, Vegetation Management in the Coastal Plain/Piedmont, Draft Environmental Impact Statement

96 1) Page 1-1. If a risk assessment is to be used it should document not just probable effects but also possible effects.. This is well within line with the CEQ's NEPA Regulations and the so-called worst-case scenario (even modified. We do not yet know enough about pesticides to determine what is probable. Throughout the history of pesticide use and regulation we have been surprised time after time. After all, DDT was a surprise as was EDB and now the problems with pesticides in groundwater. The Forest Service should be extremely cautious and conservative to avoid being surprised again.

In addition using quantitative risk analysis is a pointless task the way the Forest Service uses this one. It is obvious that the entire justification for more use of herbicides rests with the positive outcome of the risk analysis. To put so much enphasis on one tool especially when that tool is based on such a shaky foundation of data makes no sense. Quantitative risk analysis is not up to the task the Forest Service has used it for because: there is an incomplete laboratory base on human, wildlife, and ecosystem exposure to herbicides, the hazards of the full formulations are not known, wost case analysis is not really done, no pesticide profiles are done to help in interpreting the analysis. After all when many Californians became sick due to aldicarb sufoxide poisoning in the watermelons they ate this was not supposed to happen at the levels of the pesticide found according to the risk analysis done.

97 2) Page 1-2. It is also very troubling to have the FS throughout both of these volumes never owe up to the IBT scandel and the problems this places on testing of herbicides. The fact that even supposedly nationally known, large testing companies have been found making up fraudulent data should give the FS additional reason for concern about the inadequate data base it relies on to prove how harmless herbicides are.

98 3) Page 1-2. A full assessment of all pesticide ingredients needs to be done with toxicity tests so that not just the active ingredient will be tested but all consituents of the formulation. Inert ingredients can be as toxic or more toxic than the active ingredient as you have pointed out. Marv O'Brien of the National Coalition for Alternatives to Pesticides has pointed out some interesting facts about inert ingredients (copy enclosed). About 50% or more of pesticide formulation are inert ingredients. Some of these include benzene, carbon tetrachloride, asbestos, DDT, formaldehyde, hexachloraphene (with dioxin contamination), etc.

Oftentimes manufacturers buy ingredents from other companies and use several alternative formulae which can be changed whenever desired. There is no assurance that what the FS uses today will be the same tomorrow. Only 275 of the 1200 inert ingredients are considered innocuous and 55 are toxicologically significant. Most of these we do not have any information about and do not know whether they are harmful. Inerts are only tested for acute toxicity. This means that long-term effects will not be known.

99 4) Page 1-2. Using "whatever information is available" is not good enough. That is why risk assessments often are off a factor of many fold. By using only carcinogenic data you ignore the problems of nerve damage and reproductive and immunological effects.

100 5) Page 1-3. It is impossible to say that "no potential human health risk would be overlooked" when you do not have all the relevant data to make this assertion.

101 6) Page 1-5. It is not clear how toxicity summaries were updated for the last 2-4 years. Please explain how the most up-to-date information was found and determined to be accurate.

(Continuation of Forest Service response)

96 See response to comment 18 of this letter.

97 No IBT studies or any other studies that EPA considers invalid were used in the Risk Assessment.

98 Information on inert ingredients in the proposed pesticide formulations was requested from the chemical companies and from EPA. That information is provided in the Risk Assessment. To date, only one inert ingredient considered of concern by EPA, kerosene, has been identified. Its risks were fully analyzed in the Risk Assessment.

99 Reproductive and systemic effects were analyzed, in addition to cancer risks. Where nervous system or immune system effects were noted as significant problems in the literature, those effects were discussed. A complete discussion of the data gaps encountered and their relevance to this analysis is contained in chapter IV of the EIS.

100 In the Final EIS, this statement has been revised in response to your comment.

101 The most recent toxicity studies on each chemical were identified in both manual and computerized literature searches. In addition, EPA was requested to provide current toxicological information for each proposed herbicide. EPA rates each study they review in terms of quality and utility. This information was taken into account in the discussions of toxicity and evaluations of risk.

102 7) Page 1-7. Just looking at workers and the public in general will not do in order for the FS to ensure that public health is protected. You need to look at specific subsets of the population that may be more exposed than others like hikers, ORV users, pregnant women (where effects have shown up in Oregon due to 2, 4, 5-T spraying). You also need to look at how often improper application occurs (FS personnel not following directions). These events needs to be taken into any equation where ultimate risk and management of herbicide spraying must be done.

103 8) Page 1-8. It is not clear where the FS gets it justification of extrapolating from 2,4-D workers exposed for eleven other pesticides. Surely there are factors which make this method not applicable. A discussion is needed here and a clearer justification for such an action.

104 9) Page 1-9. The FS only gives a cursory examination of sensitive individuals or populations. Who are they? How does sensitivity occur? What are the likelihood of persons exposed to herbicides becoming sensitized to them?

105 10) Page 1-10. The LC 50 or LD 50 are totally inapplicable tests for seeing the effects of herbicides on widlife and aquatic species. Since the most damage that likely will come from herbicides will be cumulative, synergistic, and long-term these are the tests that a risk analysis should be based on if one is done.

106 11) Page 2-2. It makes no sense to spray trails with herbicides. This guarantees human expsure. Volunteers or FS personnel can do such maintenance with hand tools.

107 12) Page 2-2. Why would the FS want to take the risk of poisoning RCW by spraying in their colonies. This too needs judicious use of hand tools for reduced risk and minimized disturbance for the RCW.

108 13) Page 2-2. I find it very interesting that the FS never states what it considers the droplets that come from its aerial spray program to be small in size. Are we talking microns or what. Spraying by air will cause drift. It is inherent in the nature of the operation. Large drops can be atomized and displaced by wind and just the movement of air due to the aircraft.

109 14) Page 2-3. Table 2-1 troubles me greatly. While showing a seemingly small amount of acreage to be treated by herbicides you have in the footnote the phrase maximum anticipated acres sprayed in the future "may not reflect alternatives proposed subsequently". What is the maximum acreage that may be sprayed. Under NEPA you are required to reveal what this is if the program is successful to you and you decide to enlarge it. This requires a worst-case scenario. You need to give a realistic assessment of howmuch more potentially may be sprayed.

110 15) Page 2-10. Here you say that granular applicators are not likely to get significant herbicide exposures. What about volatilization of the granules on hot days and humidity that is high and applicators sweating and wiping the sweat off with contaminated hands or on contaminated clothing. Give a realistic assessment here.

111 16) Page 2-11. I cannot agree that aerial application is good for treating small scattered or isolated areas. Under such conditions more drift is likely onto non-FS property. A bad neighbor policy to be sure.

112 17) Page 3-3. I certainly disagree with your contention that the threshold effects may not be true for carcinogens, teratogens, and mutagens. A few shorts years ago the President's Office of Science and Technology printed a policy on carcinogens and it acknowledged that the threshold theory was not the best for a carcinogen and that the overwhelming concensus in the scientific world was there was no threshold for a

102 Risk estimates that cover the likely range or exposures are included in the risk analysis for the public. For example, dermal doses due to premature reentry to a treated area apply to all types of recreational uses. Risks to pregnant women and their babies are calculated for each herbicide in the risk analysis of reproductive/developmental effects.

Forest Service workers who do not follow directions are likely to get exposures described in the Risk Assessment as maximum for routine applications. They are not likely to get exposures higher than those estimated for the accidental worker exposures evaluated in the Risk Assessment.

103 There are no field studies that quantify exposure for most of these herbicides. However, 2,4-D exposure has been extensively studied; the resulting estimates are considered to correspond well with actual 2,4-D exposures measured from pharmacokinetic studies. These available data were used to estimate the amount of each herbicide entering the body as a function of the application rates and methods used for that herbicide. Specific information on dermal penetration rates, where available for a herbicide, was used to estimate exposures. A conservative estimated dermal penetration rate of 10 percent was used for the herbicides for which no dermal penetration value was available. The justification for using this value is given in section 4 of the Risk Assessment, "Human Exposure Analysis," in the subsection entitled "Dermal Exposure of Forest Users."

104 Possible effects on sensitive individuals are described in section 5 of the Risk Assessment, "Human Health Risk Analysis," in the subsection entitled "Effects on Sensitive Individuals."

105 Evaluating wildlife and aquatic species risk using LD_{50} and LC_{50} data is the method described by EPA in the EPA Office of Pesticide Programs' document "Hazard Evaluation Division--Standard Evaluation Procedure: Ecological Risk Assessment." For the EIS we have accepted and utilized this procedure. Additionally, the herbicides do not bioaccumulate (chapter IV, pages IV-56 and IV-59 of the Draft EIS and page 8-2 of appendix A), so cumulative effects are only likely where multiple exposures are received in a short period of time. Multiple exposures to a single herbicide that might lead to cumulative effects or exposures to more than one herbicide simultaneously that might cause synergistic effects are unlikely because spraying operations are widely distributed compared to most species' home range size.

106 There are several possible scenarios wherein the use of herbicide would be less risky to workers, and not significantly risky to visitors. Control of poison ivy, oak, or sumac come immediately to mind. All treatments along trails are selective, many of which do not involve spraying at all.

107 The Risk Assessment addresses the potential effects of spraying in a red-cockaded woodpecker colony. 2,4-D and 2,4-DP present a significant potential for direct toxic effects when broadcast to foraging or nesting areas, but not when applied selectively. All treatments in T&E habitat must be selectively applied; many do not involve spraying at all. Selective herbicide use is recognized by the U. S. Fish and Wildlife Service as a valid tool for improving the habitat of the red-cockaded woodpecker by removing encroaching midstory and understory hardwoods. Concurrence by the FWS must be obtained before any habitat improvement project that "may affect" (including beneficial effects) any threatened or endangered species may commence.

(letter continues on next page)

108 Droplet size and spray drift are discussed in the section on "Public Exposure and Dose Estimation" in section 4 of appendix A. The analysis assumes that a certain amount of herbicide drift does occur. Spray equipment (aircraft type, flying altitude, airspeed, boom type, boom pressure, nozzle type, nozzle orientation) and weather conditions would be chosen by the Forest Service to minimize drift.

109 Figures given in table 2-1 (appendix A) are realistic figures for the time they were prepared. Footnote (a) recognizes that two EIS's are being prepared subsequent to preparation of this table. If those EIS's contain alternatives which affect data in this table, those EIS's will analyze the impacts. Here, physical capabilities of the land and program needs are relatively well known, thus "realistic maximums" are stated. See response to your comment 38.

110 Herbicides will not be applied on extremely hot days. Applicators applying pesticides, including those applying granules, will wear gloves and will be instructed on precautions concerning wiping sweat and other activities that might contribute to their exposure.

111 The Forest Service may decide not to apply herbicides by air on sites adjacent to sensitive areas. The Forest Service has developed mitigation measures to address this issue. Please see Draft EIS pages II-48 to II-54 and "Mitigation Measures" in section 2 of appendix A.

112 The Risk Assessment assumes that there are no thresholds for carcinogenicity and mutagenicity. Estimates of teratogenic effects, however, are based on laboratory-determined NOEL's.

carcinogen.

113 18) Page 3-3. Dermal and inhalation routes do not best duplicate the likely ways humans are exposed to herbicides or pesticides. Actually we have tremendous pesticide residues in food that probably are our largest route of intake.

114 19) Page 3-5. On Table 3-1, diesel is much more toxic for aquatic life than what you show. You need to use the most toxic test whether it be aquatic or terrestrial testing. In addition using sugar, table salt, caffeine, etc. as a way to make these herbicides seem innocuous is ridiculous since the long-term effects that accumulate over the years are the most important ones. This is where you are most likely to get cancer. This is a biased table representation. It tells the truth but not the whole truth.

115 20) Page 3-6. You need to point out that effects may still be occurring even though we have established a NOEL. This is just the level at which we fail to see effects.

116 21) Page 3-8. These tests leave out important additional tests like those for nerve damage and immunosuppresion tests.

117 22) Page 3-10. You need to be specific here. What toxicity studies are missing and have not been done or validate. You do not mention the IBT fraud here.

118 23) Page 3-20. According to an article in Forest Watch in June 1986 (copy enclosed) glyphosate is persistent in the soil for up to two years. It is a nonselective herbicide and some of the unknown inerts are more toxic than glyphosate in tests on bluegills and rainbow trout. Eighteen of the health tests were done by Industrial-Bio-Test which later was found to be doing fraudulent toxicity tests. These tests include tests for cancer, birth defects, and genetic damage. Glyphosate is only conditionally registered and is not registered for all the ingredients in Round-Up. EPA considers glyphosate a possible human carcinogen since it causes kidney tumors in mice (kidney tumors are very rare in mice).

119 24) Page 3-10. For 2,4-D papers have noted an association of armillaria root rot with the spraying of this herbicide. This is not mentioned here. In addition 2,4-D can persists in sediments or groundwater for 10 months in cold temperatures. It has been found to travel when aerially applied from 10-50 miles and enter 70% of the streams monitored during a model spray program even though 100-200 foot stream buffer strips were used. 2,4-D has N-nitroso compounds which can be carcinogenic and it also can contamin dioxin as an impurity. It may contribute to soft tissue lymph susten diseases.

120 25) Page 3-18. So far only acute toxicity tests have been done for Dicamba. Long-term toxicity tests have not been done yet. It is a prime candidate for leaching through soil to groundwater since it does not bind to soil or organic matter and is highly soluable in water. It is a very mobile herbicide. It also has dioxin as a contaminant and probably nitrosomines too.

121 26) Page 3-45. I disagree that any overstatement of risks of active ingredients will take care of any effects by inert ingredients. Many inerts may be more toxic than the active ingredient. For instance some manufacturers use formaldehyde as an inert ingredient.

122 27) Page 3-24. Garlon is a mobile herbicide that can enter water from soil as much as 25 times greater than the tendency EPA considers indicative of pesticides that leach. It can be stable in groundwater up to nine months. It is highly toxic to rainbow trout (0.74ppm) and bluegills (0.83ppm) for an EC 50. It has persisted in soils in Sweden for two years and can be toxic to conifer seedlings at least 6

113 In the Final EIS, the sentence to which you refer has been corrected.

114 This table presents only acute toxicity data. Acute mammalian information (i. e., the rate LD_{50}) is used in evaluation of human health effects and does not apply to other (non-mammalian) species. Chronic and other long-term effects are covered elsewhere.

115 The premise is that with a thorough examination and observation protocol in a long-term animal study, any significant adverse effect would be observable.

116 Chronic and subchronic studies evaluate a wide range of systemic effects including damage to tissues, organs, and systems. Nerve damage and immune system effects are included in hematologic and gross pathologic examinations.

117 Data gaps are discussed in chapter IV of the EIS. See also response to comment number 18 of this letter. No invalidated IBT studies were used in the Risk Assessment.

118 The aquatic species analysis takes into account the toxicity of the Roundup formulation of glyphosate. No invalidated IBT studies were used in the Risk Assessment. Glyphosate was evaluated in the Risk Assessment assuming it poses a cancer risk although the cancer data on glyphosate are considered by EPA to be equivocal. Glyphosate's half-life does not exceed 2 months over most of the Coastal Plain/Piedmont.

119 Root rot is common, chiefly in hardwoods, with or without use of herbicides. In the South's climate, 2,4-D's half-life averages 28 days (appendix C, table 1), so less than 0.1 percent remains after 10 months. As for drift, see response to your comment 35 and to Letter No. 70, Comment No. 3. The discussion on page 3-10 is confined to toxicity studies used for evaluation of human health effects. Non-Hodgkins's lymphoma and soft tissue carcinomas can be found in the discussion of the carcinogenicity of 2,4-D. A discussion of 2,4-D impurities, including a dioxin compound, has been added to the Risk Assessment.

120 Chronic toxicity studies, including a 2-year rate study and a three-generation reproduction study, as well as several subchronic studies, have been completed for dicamba. See the dicamba discussion under "Threshold Toxicity of the 14 Herbicides and Additives" in section 2 of the Risk Assessment. As for leaching, see response to comments in Letter No. 70, Comment No. 3. As for dioxin, see response to comments in Letter No. 174, Comment No. 4.

121 This is an alternative viewpoint, as stated in the text. Where EPA has identified a toxic inert ingredient or an ingredient of health concern (Lists 1 or 2), a separate Risk Assessment of that ingredient has been done.

122 In the South, triclopyr's minimal solubility, moderate adsorption, and short half-life (appendix C, table 1) give it a low potential for ground water contamination, as verified by a Florida field study (appendix C). This section of the EIS focuses only on toxicity information that may be relevant to human health effects. See sections 6, 7, and 8 of this appendix and chapter IV of the EIS for discussion of wildlife or aquatic organism effects.

months after it is sprayed on a site. Residues have been found on berries even at low doses of 0.67 lbs. of active ingredient per acre. It may also have a similar contaminant to 2,3,7,8 TCDD in it. Both the EPA and California Department of Food and Agriculture have found that many important health effects studies have not been done yet.

All of these examples concerning additional information about pesticides that are not in this EIS demonstrate the need for better examination of information about the herbicides proposed for use. This needs to be done in the FEIS.

123 28) Page 4-2. There needs to be a discussion about what percent of the droplets break into smaller droplets with and without proper application and what size droplets you are talking about.

124 29) Page 4-4. There is a need to determine what typical and maximum cases of exposure are. There is no description here. The maximum exposure case would include a humid day where workers sweat alot and wipe their faces, etc. with pesticide ladened clothes. Including total project time permits an averaging out of exposure. This makes no sense since there can be alot of deadtime in transit to areas to be sprayed. Also the time for mixing, loading, and application should also be used and not the total time period.

125 30) Page 4-15. There needs to be a discussion of expsorue even with protective clothing. Even with respirators, gloves, etc. problems occur. There are ill fitting protective clothes, sweat, humidity, etc. which can cause dosages that are higher than expected. Also on Table 4-5 there is no indication of how many acres for Texas National Forests that will be treated with herbicides. This needs to be done so that reviewers from Texas and other states know what is planned for them.

126 31) Page 4-16. You should also give inhalation exposure separate from dermal and dietary exposure since it can cause different health problems and under certain circumstances cause higher exposures.

127 32) Page 4-17. It seems like you are trying to downplay the possibility of drift. Drift occurs period. The problems with 2,4,5-T in Oregon show that even the FS cannot guarantee proper application. You need to discuss these problems and how they can be eliminated. How will the FS ensure that its rules are followed.

128 33) Page 4-19. Wind-tunnel simulations are not what occurs in nature. What do actual tests show under conditions as they really occur? See 27 above.

129 34) Page 4-23. Why are residues being calculated for only one game animal? A deer does not represent the entire animal kingdom. The residues could be greater than shown since water may be sprayed. Again you do not seem to include sensitive individuals or populations in your concerns.

130 35) Page 4-24. Without absorption rates of the carriers how effective can your dermal exposure estimates be?

131 36) Page 4-25. Volatilization does not mean the herbicide will go away or will not contaminate groundwater especially since these compounds can be rained out.

132 37) Page 4-28. How accurate is the LEACH model? Do you use real life data and how have predictions come out? What is the percent error of the model using real life data and how accurate is the data you feed into it? You need to address the fact that EPA has put dicamba, tebuthiuron, hexazinone, and picloram on its list of suspected chemicals that can leach into groundwater. Where is EPA on testing these chemicals?

(Continuation of Forest Service response)

123 See response to your comment 108.

124 Worker exposures are extrapolated from field studies of herbicide applications where the things to which you refer normally occur.

125 Where special protective clothing is worn, exposures decrease significantly and the estimated worker health risks would decrease accordingly. Please see the discussion on "Personal Protective Equipment" in section 2 of appendix A. Table 4-5 is not state-specific. Forest Land and Resource Management Plans have been developed to address specific forest management questions.

126 The large droplet size and specialized application equipment ensure that inhalation exposures are low. Overall inhalation exposures are extremely small compared to dermal exposures; their quantification and incorporation into risk calculations would have no significant effect on the calculated margins of safety. Please see the discussion in section 3 of appendix A.

127 The Risk Assessment assumes that exposures occur from herbicide drift. But mitigation measures required for all herbicide applications (pages II-48 to II-54 of the Draft EIS) minimize drift and its effects. See response to your comment 35.

128 The analysis was based on an actual field study of herbicide deposition data; wind tunnel testing was not solely relied on.

129 The deer was chosen as a representative game animal because it is commonly hunted and consumed by humans. It would be nearly impossible to identify and analyze residues in all game species. Ingestion of contaminated water was included in the oral dose the deer receives. Toxic effects on sensitive species are addressed in appendix D and on pages IV-69-72 of the Draft EIS.

130 As stated in the Risk Assessment, reported dermal absorption values for herbicides for which information was available were all less than 10 percent. Therefore, if no absorption rate was known, it was conservatively estimated to be 10 percent.

131 Volatilization leads to rapid dispersion of the chemical in the air. Local air concentrations reach undetectable levels after a short period of time. Ground water modeling assumed that 100 percent of the herbicide reached the soil surface (appendix A, page 4-25) and maximum application rates were used (appendix A, page 4-39). These assumptions were used to model the maximum possible potential for leaching.

132 The LEACH methodology was developed from 25-year simulations of pesticide leaching using the Pesticide Root Zone Model (PRZM) which has been validated at sites around the country. User-input parameters describe a specific pesticide/site/crop/management scenario, and are discussed in section 4 of appendix A. Output consists of a cumulative frequency distribution of pesticide leaching for each particular scenario. The data in table 4-29, appendix A, represent the high fraction of herbicide that leaches past the crop root zone only 10 percent of the time when applied at maximum rates over a shallow sand aquifer. LEACH's accuracy is verified by studies of 2,4-D, hexazinone, picloram, sulfometuron methyl, and triclopyr, which never reached concentrations of 0.025 ppm in shallow ground water directly under the treated area (appendix C, pages 18-19). EPA's status is in appendix A on page 4-44.

133 38) Page 4-32. It is not necessarily the wells in the forest that will be most affected. Private land next to [redacted] may have wells that could be contaminated. In addition the real problem will be the recharge area to the aquifer and how it may be contaminated and then flow downdip of the [redacted] and contaminate other people's wells. It may take decades to occur like in the high plains of Texas where arsenic pesticides contaminated aquifers after spraying for 30 years.

134 39) Page 4-44. Since plants can develop resistence to herbicides how do you know the application rate will not increase due to this potential problem?

135 40) Page 4-44. It makes no sense to restrict drinking water contamination to surface water bodies only since groundwater is used for drinking as well. Both of these sources of drinking water must be looked at for contamination potential.

136 41) Page 4-48. How well do people adhere to the buffer zones you talk about for streams (6.1 meters for instance)? What is reasonable accuracy in predicting major storms. You need to define this term. Since meteorologist are wrong all the time in predicting even major storms I have no confidence in this statement.

137 42) Page 4-63. It seems here you try to minimize herbicide residues in smoke. You do not address the possibility of diaxin and difuran being in the smoke and that these substances can be toxic even at low levels. It seems like you are ignoring the cumulative effects and possible biomagnification and accumulation of the products of incomplete combustion from fires.

138 43) Page 4-66. If the studies in the field show that even with protective clothing there are problems and that procedures are not followed then how do you expect things to be any different with the FS?

139 44) Page 4-84. The table underestimates what can be breathed. Certainly more exposure than what you show occurs as does a greater intake of herbicide.

140 45) Page 5-5. It is absolutely false to say that the "Public is not at cancer risk from any of the chemicals". This ignores completely the lack of thresholds for carcinogens. Plus you do not take into account the possibility that such compounds might be tumorepromoters or enhancers or in combination with other compounds may cause cancer. This is not sciantific and not professional.

141 46) Page 5-29. Your reassurances are not convincing that the maximum public exposure is negligible. The same was said about Three Mile Island, Chernobyl, and many plane crashes. They could not happen and yet they did. You do not acknowledge that women in Oregon have already had problems with herbicides causing miscarriages. Drfit occurs all the time and not all accidents are reported yet you assume that everything will do just right and even when it does not that contamination will be minor. It seems as if the [redacted] is acting like it is infallible. Posting areas does not means people will stay out of them (signs do fall down or people enter the area sprayed where there are not signs).

142 47) Page 5-31. Using TLV's is not appropriate for public exposure to herbicides since they are based on occupational exposure to healthy adults and not to children, pregnant women, babies, sensitive individuals, etc.

143 48) Page 5-34. The standards you use do not say anything about dioxins and other very dangerous contaminants. Again you never say how training in safety procedures (page 5-36) will ensure that the procedures are used.

144 49) Page 5-42. You never talk about the interaction of carcinogens in sm-oke with herbicides.

133 This analysis focuses on the shallow aquifer most at risk from contamination. A ground water model was used to determine the movement of herbicide once it reaches that shallow aquifer. See response to comments in Letter No. 70, Comment No. 3.

134 Forest Service use will not exceed current typical application rates as shown in table 4-6 (appendix A). This is stated in mitigation number 4 on page II-48 of the Draft EIS.

135 Surface and ground water were assessed for contamination potential. See Draft EIS section IV.G.1, beginning on page IV-85.

136 Minimum buffers of 30 feet (ground) and 100 feet (aerial) will be adhered to with a high degree of compliance (Draft EIS page II-53). Weather forecasts are our best source of data to plan our actions, and major storms are forecasted with considerable accuracy. Actual results of herbicides applied in a variety of weather and buffer conditions appear in appendix C and in the Draft EIS section IV.G.1, beginning on page IV-85.

137 All calculations used the minimum number of days between application and burning to calculate the amount of herbicide remaining on vegetation. In addition a same-day (no degradation) scenario was evaluated. Dioxins and difuran were not identified in the analysis as constituents of concern. Cumulative effects or biomagnification were not identified in the literature as problems.

138 The maximum exposure calculations assume that no protective clothing is worn.

139 Both field studies and modeling indicate inhalation to be a small fraction of any individual's total herbicide exposure.

140 In the Final EIS, this statement has been clarified in response to your comment.

141 The Forest Service will take all reasonable precautions to ensure that no member of the public is exposed. We also analyzed the possible accidental risks you mentioned.

142 The use of TLV's is a conservative method of estimating risk from inhalation exposure, since TLV's are based on exposures repeated 8 hours per day 5 days per week. Public inhalation exposure to herbicides would not be as regular or continuous and would be limited to exposures of very short duration only once or at most a few times during a lifetime.

143 2,3,7,8-TCDD is not a problem with any of these herbicides. 2,4-D may contain 2,7-DCDD, which is much less toxic; its risks are evaluated in the added discussion of 2,4-D contaminants. Training in safety procedures ensures that workers can make a reasoned choice--it does not preclude poor choices or accidents.

144 There are no data available on synergism of smoke constituents and herbicides to support an analysis of those effects.

145 50) Page 5-42. Again you try to belittle the dangers of herbicides by zeroing in on cancer risks and comparing it to other risks. You are not taking all the health impacts into account. You treat each risk assessment of some disease, like cancer, separately rather than cumulatively. You do not even acknowledge the nerve and immune system problems that can dome with herbicide usage.

146 51) Page 5-46. It is ridiculous to say synergistic effects are relatively rare. You cannot even show data to back you up on this. We do not know enough about such effects, since so little testing has been done, to begin to understand what might happen. Very little testing of multiple pesticides has ever been done.

147 52) Page 5-51. With dioxin contamination of 2,4-D dermititis of the chloracne type is quite possible.

148 53) Page 6-2. On Tables6-1, 6-2,.6-4,.6-5, 6-6, and 6-7 you use the most convoluted and totally unscientific approach. Most of the animals you use are either domestic animals or wild animals that have been domesticated like Mallard Ducks. This totally skews your risk assessment and makes it worthless.. There is no way that scientifically you can tell me that a Mallard Duck will equate to a Red Cockaded Woodpecker or a snake or other reptile or amphibian. This is not science but charlatanism.

149 54) Page 6-4. The real question is will cattle actually be witheld from grazing for three weeks. On Page 6-5 you use insect to mirror all invertebrates when in fact snails, clams, spiders, millipedes, centipedes, and various crustaceans can all react very differently to the same toxic substance. This is not scientific.

150 55) Page 6-25. I do not consider 2ppm toxicity for acute tests as a moderately toxic substance. You never say how good the data is that you use to try to prove your point. You cannot make a hard and fast statement about how toxic things are or how you will substitute the toxicity of one species for another species when in fact most species have not been tested and therefore you are just shooting in the dark.

151 56) Page 6-33. I have included an article by Harrel on a spill of oil in the Big Thicket area that was still having effects years after clean-up.

152 57) Page 6-38. We are very dubious about applying other species toxicity levels to reptiles and amphibians since so little data has been gathered on these creatures that to do so is purely a guess.

153 58) Page 7-1. Your Roger Conant book on retiles and amphibians is not even the latest edition which is 1975 and not 1958.

154 59) Page 7-2. Table 7-1 does not show how these supposed representative species were chosen. What criteria were used. There are no salamanders, no lizards, and only a few herptiles in general. I want to know how you chose these species. We do not know yet if chronic wildlife dosing is a problem because no one is studying it. But it needs to be in this risk assessment if it is to be worth while at all.

155 60) Page 7-5. Table 7-2 does not make realistic assumptions. For instance turtles should have a major portion of their body surface area contacting vegetation. How did you determine the assumption of the biological parameters? You need to spell it out so the reviewer can see if they agree with your methodology.

156 61) Page 7-6. Here you go again making really unrealistic assumptions. You have no data to show that animals have 10% penetration, the same as humans.

(Continuation of Forest Service response)

145 Damage to all systems simultaneously was evaluated in the laboratory studies used to set the systemic NOEL.

146 EPA guidelines for assessing risks from chemical mixtures recommend using additive models (instead of synergistic or antagonistic) if precise information is lacking (appendix A, section 5, EPA 1986e).

147 Levels of dioxins that might be found in 2,4-D formulations would not be high enough to cause chloracne. Also, see response to your comment 143.

148 The wildlife risk assessment used the best available data on the most closely related species to assess risks. Extrapolation from rats to humans is done routinely in human toxicology. This is an accepted scientific method. A subsection on the use of wildlife toxicity surrogates is contained in section 8 of appendix A and includes a discussion of correlation studies conducted by the U. S. Fish and Wildlife Service. The uncertainties inherent in this are acknowledged in the Risk Assessment. See also response to comment 18 of this letter.

149 Reentry times specified on labels will be followed. The analysis uses the best available data on the most closely relates species.

150 See response to your comments 148 and 149.

151 The effects of oil spills would naturally far exceed any that might be caused by the controlled use of petroleum distillates as spray adjuvants. The two types of exposure are not really comparable.

152 See response to your comment 148.

153 The information from the 1958 Conant edition used in the analysis is accurate.

154 These species are widespread and characteristic of the areas liable to be sprayed. The analysis was purposely limited because of data availability and the simplicity of the analytical methods. No analysis could reasonably assess risks to every wildlife and invertebrate species. The Risk Assessment (appendix A) used 19 terrestrial vertebrates, 12 aquatic vertebrates, and 4 aquatic invertebrates to predict risk of toxic effects to wildlife. These species were chosen to represent a broad range of taxonomic groups, food habits, habitat, and geographic occurrence. Using this information and other available studies, risk to all threatened, endangered, proposed, or sensitive species is discussed in chapter IV and appendix D of the Draft and Final EIS. See pages IV-56 and 57 of the Draft EIS for a discussion of chronic effects on wildlife.

155 Turtles are protected by a shell. The surface areas have been increased, however, to more accurately reflect contact with vegetation. The parameters are based on studies of animal physiology where metabolic functions are related to the 2/3 power of the body weight. The analysis assumes that animal activities such as amount of movement during the course of a day are related to metabolic rate. To obtain sufficient food, smaller animals have to cover more ground relative to their body size than larger animals. The specific equations are based on assumptions drawn for this analysis by the preparers of the Risk Assessment.

156 It is quite likely most animals have much lower penetration rates than humans because of fur, feathers, or scales. Amphibians, with their moist, glandular skin, are assumed to have a much higher dermal penetration rate than mammals.

157 62) Page 7-6. It is not just a cloud of herbicides that is inhaled. There also is continued volatilization for awhile.

158 63) Page 7-10. On Table 7-4 it does not make sense to assume toads eat only insects. They eat earthworms, slugs, other soft bodies prey and other food items. Your food preferences do not make sense in light of your one specide represents all philosophy. If you really believe this is the right way to do this assessment then you will represent all possible food items because the different species will eat different things.

159 64) Page 8-1. With so few animals being tested your risk assessment has no scientific grounds on which to make any statement. On Page 8-2 bioaccumulation is not the only way chronic damage will occur. Several exposures could be enough to trigger sensitivities. But you dismiss long-term effects. This is not scientific.

160 65) Page 8-3. There is not a reasonable correlation between avian and amphibians and reptiles for poisoning. This is a ridiculous assumption and there is no justification for it. Mallard Duck cannot in any stretch of the imagination be a surrogate for a Marbled Salamander. The look of it is even ludicrous.

161 66) Page 8-4. The statement "reproductive capacity of these species is generally high enough to replace the few lost individuals within the next breeding cycle" totally ignores that it may be the reproductive system which is affected so that there is little or no breeding. In addition this statement does not take into account that the population may collapse because the few areas where certain species exist are affected. Finally you admit that even Avian toxicity data are particularly rare for most of the herbicides." and therefore I do not see how what you do have can be applied to everything else.

162 67) Page 8-20. Please document your statement that there is little risk to aquatic species from drift. I do not believe you can make this claim with any assurance. This is especially true since you admit that chronic toxicity testing data on aquatic species is very limited (Page 8-21).

163 68) Page 8-24. It is not scientific to look at only three endangered species and assume they will be surrogates for all others. This has no basis in fact either.

164 69) Page 8-45. Why have you not included mare salamanders in your results?

Concerning Appendix B on the effects prescribed fire has this discussion is incomplete. In the first place it should not be limited to only soil and water
165 but also to flora and fauna. I am very disappointed after having had an opportunity to read the draft to see how few of the questions and comments I asked were answered in the final version. For instance, do summer burns have greater ecological and wildlife effects than those done in the winter? As a result I am reincluding the comments I made on the draft document and am requesting a response to these comments in the FEIS.

166 Slash burn effects have not been completely studied .For instance the carcinogenic polycylclic aromatic hydrocarbons are found in slash burn smoke, ash, and litter. The increse in shellfish of this substance is thought to be linked to slash burning at Yaquina Bay in Oregon during a high period of runoff. An especially worrisome PAH, B nso(a)pyrene has been found in foest litter following slash burning at a level that is 300 times greater than before the burn. There are significant levels of fine particles (less than 10 microns in size) in smoke. These small particles are the ones with the greatest health effects.

Burning with herbicides could produce dioxin, chlorine gas, hydrocloric acid, cyanide, and phosgene gas or chlorine dioxide. Your analysis here and later

(Continuation of Forest Service response)

157 The herbicides used are low-volatile formulations. The analysis is conservative enough to allow for any volatilization that may contribute to inhalation exposure (a minor fraction of any total dose) after application.

158 Because of their high ratio of body surface area to weight, the use of insects as the sole dietary item provides the most conservative (highest) estimate of exposure to a toad on a dietary weight basis. Eating any other combination of items you mentioned would reduce the dose.

159 Due to short half-lives, rapid excretion rates, the infrequent use of herbicides on a given site, and the mitigation measures required in chapter II, animals are not exposed to amounts of herbicides capable of causing adverse effects resulting from chronic exposure. Disease, predation, and old-age are of more concern than exposure to low levels of herbicide. See also response to comment 154 of this letter.

160 Although some surrogate species are not closely related to the laboratory species, the best data currently available were used. Amphibian and reptile data do not exist for many herbicides. Avian data were the only reasonable data to use in these cases. Please refer to chapter IV of the Draft EIS for a discussion of data gaps and costs of acquiring additional data vs. the likelihood of risk to wildlife from the herbicides analyzed.

161 It is the reproductive capacity of the population, not the few individuals exposed, which ensures repopulation of the habitat. Endangered or threatened species represented by a few scattered individuals are dealt with on a different level with concurrence of the U. S. Fish and Wildlife Service. See response to comment 159 and 160 of this letter.

162 The conclusions were derived comparing estimated concentrations in appendix A, table 7-6, with toxicity values in tables 6-8 to 6-19. Dilution and water movement should dissipate concentrations within a short period of time, so chronic exposure should not be a factor.

163 The Risk Assessment (appendix A) used 19 terrestrial vertebrates, 12 aquatic vertebrates, and 4 aquatic invertebrates to predict risk of toxic effects to wildlife. These species were chosen to represent a broad range of taxonomic groups, food habits, habitat, and geographic occurrence. Using this information and other available studies, risk to all threatened, endangered, proposed, or sensitive species is discussed in chapter IV and appendix D of the Draft and Final EIS.

Endangered species are not used as surrogates for other endangered species in this analysis. The three chosen species were considered important to deal with in the overall analysis. Other endangered species would be analyzed on a site-specific basis.

164 See response to comment 163 of this letter.

165 The scope of appendix B is limited to effects on soil and water only. Refer to Draft EIS pages IV-30 to IV-37 and IV-62 to IV-66 for a discussion of prescribed burning (including season of burn) on vegetation and wildlife.

166 Our research did not uncover any data on carcinogenic hydrocarbons in post-burn runoff. Yaquina Bay is affected by many factors not found on southern national forests. Appendix B covers effects on soil and water, not air. Effects of slash burns on soil physics, biota, organic matter, and nutrients are assessed rigorously on pages B-4-12.

does not take into account these kinds of dangerous gases that can be in smoke. In addition slash burning does not duplicate nature since it occurs more frequently than natural fires of this intensity and it burns hotter and causes higher soil damage than most natural fires. Slash burning also reduces moisture retention by burning up organic matter. It also volatilizes and leaches nutrients and destroys the forests mycorrhizae. This can lead to lower soil productivity. Yet these types of effects are either not mentioned or are underplayed. This is not right.

167 70) Page B-3. It is not clear how southern conditions were adjusted for to come up with typical temperatures by fire severity class. This needs to be explained in detail. In addition the soil biota you deal with is incomplete. You do not deal withvertebrates like earth and brown snakes, narrow-mouthed toads, etc. which also aerate the soil and may be affected by fires. You need to deal with all the soil biota and not just certain select ones.

168 71) Page B-4. When recovery after a burn takes 8 years I do not consider this a minor change on soil microflora. How do you define significantly on B-5. Eight years is a long time. Show what criteria you used and how these were determined.

How often do intense slash burns occur when duff is not consumed? Your conclusions here are biased and do not give the total picture you just spelled out in the narrative portion, namely that annual burns have a harmful effect.

169 72) Page B-6. under the effects on organic matter the description seems to contradict the conclusions. Since it takes 30-35 yrs. for slash burns and 8-10 yrs. after underburns to build up organic matter equilibium in the litter-duff and topsoil this seems like a significant effect to me.

170 73) Page B-20. The USL equations are suspect when you use topographic data that is inaccurate. This must be redone.

171 74) Page B-22. I dispute your [redacted] effect on soil biota due to slash burns. Small animals can and do burn to death in fires or are destroyed by the earth-moving equipment which are a part of the entire slash burning methodology. Where did you get the definition that a severe burn meant that greater than 20% of the soil must be altered. What criteria did you use and how did ~~you~~ derive them?

172 74) Page C-1. I do not agree with the conclusion which should not be at the beginning of such a paper but at the end once evidence has been laid out. I do not see the documented information that intensive management will be needed to meet increased demands when the demand for wood has in fact been falling. This entire paper is one of the most biased papers I have ever seen as it starts from the view that the answer is already known and that the paper is just to prove that the preconceived notion is the right one. The author never tells you how ofte practives are properly prescribed, applied, and guided. In the real world and not in experiments things do not happen like he seems to think they will. I do not see people taking the care that this person seems to think they do.

173 75) Page C-1. Herbicides are not cheaper. Please see the enclosure. This is a myth and is not true. It seems the author is trying to ascribe to the general public ignorance because they are concerned about health effects of herbicides. The public is not stupid. They see the damage that herbicides do.

174 76) Page C-2. The public is also concerned about onsite toxicity to flora, fuana, and water. The autori sure seems to make alot of assumptions as to what the public thinks. I believe he needs to listen instead of thinking he know what is best for the public.

175 77) Page C-5. What is your definition of low volatility?

167 Appendix B, page B-3, has been revised to explain the adjustments. The vertebrates you mention influence subsurface hydrology but have negligible effects on soil physics, so they are not discussed.

168 The statement on page B-4 has been clarified. Significance here means a meaningful change in the size or composition of biotic populations. Slash burns do not consume the duff if done when soil, duff, and large fuels are moist (pages B-22-23). The conclusions on page B-4 clearly infer that annual burns have a harmful effect.

169 Litter-duff buildup is rapid at first and then tapers off, so that the organic matter budget is nearly restored long before litter-duff equilibrium is reached. The references cited support the conclusions.

170 We did not use inaccurate data. The data were adjusted to more realistic values based on field observations.

171 The conclusions are based on data earlier in the paper. See response to your comment 167. The 20 percent criterion came from Wells and others (1979), referenced in appendix B.

172 The introduction on page C-1 describes existing forestry conditions in the South. The paper's conclusions are on page C-19.

173 Herbicides are cheaper for site preparation ($40-90 per acre) than the intensive mechanical methods ($110-160 per acre) cited on page C-1. See Draft EIS pages IV-107 to IV-110 for up-to-date cost data.

174 The statements reflect where most concerns have been publicly voiced.

175 Low volatility means that the herbicide does not readily volatilize, and then only at high temperature and wind speed and low humidity.

176 78) Page E-6. A low rate of herbicide could also mean that it will be less effective. By saying that only 1% of the [redacted] is sprayed by herbicides the author is describing the present situation which means that 4,600 acres is treated. He is not describing the future which this document even says may mean even more spraying than is noted in any of the alternatives. Also the amount applied and freqency could also increase once the program gets rolling. This document is remiss in not giving the maximum acreage this program could treat with herbicides.

177 79) Page C-7. How often are buffer requirements adhered to? Where is the data to show they are adhered to?

178 80) Page C-8. I do not see the Neary citation in the referred journals so I am concerned that its importance and validity has not been tested by the scienific community. The studies cited for tree growth I do not agree with. Studies show that other methods like thinning can do the same job. You cite studies that I believe are flawed. On Page C-9 it can be seen that using herbicides you can expect twice as much erosion as control sites get. Therfore I do not see how on Page C-10 you can say that herbicides show a positive effect on erosion. Erosion still occurs with herbicides greater than if the area had not been treated so erosion is worse not better.

179 81) Page C-10. Why are you looking only at soil flora and fauna and not all species? I certainly do not agree with the sentence that "There is, however, a general concensus that herbicide usage at normal forestry rates does not reduce the activity of micro-organisms.". There is no documentation that you present for this broad assertion.

180 82) Page C-11. I do not believe for a moment that herbicides will be used only once/forest rotation.

181 83) Page C-12. The reason there are no Water Quality Standards for many herbicides is because EPA and the states have been loath to set any. It has not been a priority in Texas or other areas to set toxic standards. Only in the past month has this been done in Texas. There are no objective evaluations of herbicide concentration in water because of the gapsin data. Risk analysis is inherently not oabjective because of the huge data gaps. In some respect I do not even know why this report is in here since it is a regurgitation of the risk assessment. It merely seems to be a poor attempt to buttress weaknesses of the risk assessment by repeating its conclusions as fact.

182 84) Page D-1. The state listed species are ignored here. This is unacceptable.

183 85) Page D-3. You also need site specific searches for species. You need to be thorough that the are not inhabiting any site or you could end up killing them. Therefore you need a site specific EIS for each herbicide use and not just some amorplous environmental analysis. NEPA does not use environmental analysis but uses EA and EIS. Use the same terminology so I know what you are talking about. I do not see how you will determine whether an area has a high potential for occupancy. You need to spell this out; the criteria used and how they are derived.

184 86) Page D-4. This Table D-1 is ridiculous. I do not believe that the forest standards and guides for riparian and wetland areas will be followed. You have shown no data that they will be. Where are your studies that show this is done now on a routine basis?

185 87) Page D-5. The public and wildlife agencies should be contacted at the beginning of the evaluation and not at the end when you already are making a decision. Consultation should occur before mitigation measures to ensure input and keep mitigation from affecting other species or the endangered species themselves and to ensure that the wildlife agency which knows the most about the species agrees the mitigation will work. Table D-2 is therefore not accurate and not worthwhile.

(Continuation of Forest Service response)

176 Environmental fate, not effectiveness, is the topic of this paper. The paper presents available data on the herbicides. These data are used to analyze the effects of the alternatives in EIS chapter IV.

177 See pages C-12-17 for a description of the buffers and their use in the studies cited.

178 These refereed scientific papers were subjected to rigorous scrutiny before printing and have high integrity. Selective herbicide application should not increase surface or channel erosion, while broadcast application should slightly increase both. In table 2, the controls were untouched while the treated watersheds were harvested and herbicided. Some of the increase was due to harvest. Compared with all other methods of site preparation except manual, even broadcast herbicides do show a positive effect on erosion (Draft EIS table IV-13).

179 Only soil flora and fauna significantly affect soil productivity, which is the subject of the paper. The consensus exists among scientists that have studied the effects of herbicides on soil micro-organisms.

180 The once-per-rotation statement applies to herbicides used for site preparation.

181 Analysis of herbicides in surface and ground water (EIS pages IV-85-88) compared estimated herbicide concentrations with EPA's strictest drinking water standard (0.100 ppm for 2,4-D), to be as conservative as possible. Every study cited in appendix C was an objective evaluation of herbicides in water. The studies are the basis of the paper's conclusions, which have nothing to do with the Risk Assessment.

182 See response to comment 44 of this letter. Effects on these species are shown in appendix D of the Final EIS.

183 See pages II-35 and II-36 of the Draft EIS for an explanation of terms and the environmental analysis process. Figure D-1 in Appendix D of the Final EIS further clarifies this process. See response to comments in Letter No. 321, Comment No. 22.

184 This table has been changed in the Final EIS, Appendix D, to reflect the potential for adverse effects on these species. Each national forest is responsible for compliance with its Plan's standards and guides and this EIS's mitigation measures. Compliance is assured by periodic monitoring as required by NFMA and NEPA.

185 See response to comment 183 of this letter.

March 3, 1987

Steve McCorquodale
Coastal Plain/Piedmont EIS
USDA, Forest Service
1720 Peachtree Road, NW
Atlanta, Georgia 30367

Dear Mr. McCorquodale,

Enclosed are my suggestions for scoping major issues to cover in the vegetation management EIS for the Coastal Plain/Piedmont EIS that will be prepared.

1) Overspray or drift problems on vegetation, ecosystems, fauna, and human habitations.

2) Effects on riparian vegetation and bottomland hardwoods.

3) Effects on mast bearing trees and other wildlife food sources.

4) Water quality impacts including aquatic toxicity to stream ecosystems and both acute, chronic, cumulative, and synergistic impacts.

5) Terrestrial impacts and mitigation.

6) Mitigation in general for all impacts.

7) The safety of herbicies used and the problem with faked test results and carcinogenic, teratogenic, mutagenci, and nervous system poisoning.

8) Use of buffer zones to mitigate effects.

9) Effects on trails and users of trails and recreation that must use trails.

10) Effects on fallen logs, snags, den trees, etc.

11) Effects on state, federal, and other species of concern (like those listed by the Texas Organization for Endangered Species).

12) Food web impacts and biomagnification and concentration.

13) The efficiency of spraying (how much reaches target species versus how much hits nontarget species).

14) The full costs (including environmental costs) of all methods (burning, spraying, hand cutting, mechanized cuttings, etc.).

15) Ecosystem forest management where the number of species utilized in the forest is increased and all species are seen as having some benefits and are not simply branded as weeds to be removed.

16) What is known about each method considered, what is not known, and what research is needed.

17) Use of each method on private versus public lands and the different management philosophies for each type of land (private versus public).

18) Impacts on all types of recreation (hunting, fishing, hiking, horseback riding, ORVs, canoeing, etc.).

19) Impacts on game species.

20) Impacts on nongame species including invertebrates.

21) Impacts on sensitive areas (wilderness, research natural areas, riparian areas, old growth, where [redacted] are, etc.).

22) Impacts on fisheries.

23) Impacts on fire tolerant, dependent, and intolerant species.

24) Noise impacts.

25) Impacts on solitude.

I appreciate this opportunity to comment and look forward to hearing from you on an update of your work.

Sincerely,

Brandt Mannchen

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Presentation of Herbicide and Slashburn
Risks to Wildlife in the EIS

If (a) the amount of information necessary to characterize risks posed by herbicide treatments, slashburning, or individual herbicides to wildlife is staggering; (b) the information available is spotty and often limited to a small number of acute toxicity tests, and (c) the result is that we do not have enough information to declare slashburning or any herbicide "safe for wildlife," what should this EIS do to fulfill its NEPA obligations to discuss direct and indirect environmental effects (40 CFR 1502.16) on wildlife?

1. The EIS should admit that the range, persistence, and severity of impacts on wildlife populations from slashburning and herbicide treatments is not known.

Example 1: The attached passage on indirect effects of forest herbicides on aquatic life (Norris 1983 in Perry and Tappeiner 1986) is instructive. In the passage, the researcher writes that "Herbicides may alter natural patterns of plant succession along streams... Control of terrestrial vegetation may alter physical characteristics of the stream environment... Alteration of the vegetative structure of watersheds may result in decreased streambank stability and increased erosion from hillslopes...[H]herbicides...may extend the period of increased sedimentation [due to logging].... [H]erbicides may directly affect aquatic primary producers (plants); indirect effects of herbicide applications may also alter primary producers in streams.... Primary production in streams may be stimulated by increased nbutyrient concentrations.... Aquatic invertebrates may be affected by physical changes that result from herbicide application.... Alteration of terrestrial vegetation by herbicides may influence communities of aquatic invertebrates.... Fish populations, especially salmonids, could also be detrimentally affected by herbicides."

The passage ends with this sentence: "Evaluation of potential impacts of herbicides on stream ecosystems must incorporate all of these factors to achieve an accurate assessment."

This passage is talking only about the indirect effects of herbicides and only on aquatic life. There is no way to avoid

stating clearly that we do not know the effects of slashburning and herbicide use on wildlife.

Example 2: The statement is often made that any effects from spraying herbicides or slashburning will be temporary; that displaced or damaged populations will reconstitute later; that change is always occurring in any forest. In the absence of longterm, site-specific studies, these assumptions cannot be maintained with any scientific integrity.

A review of lessons learned through butterfly conservation efforts in temperate countries, for instance, indicates that "[A]ll species [of butterflies] have proved extremely particular about the niches they occupy, and seemingly minor habitat alterations often result in poor survival of the young stages and/or reduced natality.... Most butterflies have far more specialized requirements than was once supposed.... About 85% of [the 55 resident United Kingdom] butteflies form closed populations. Apart from [4 species], all that have been studied are reluctant to cross unsuitable habitat.... Insect populations react rapidly to changing conditions, and losses that are merely considered regrettable at present should be treated very seriously as indicators of a long-term change." (Thomas, 1984)

These lessons regarding the elimination of butterfly populations have been learned through field studies over time. In the absence of collections of such studies, claims as to the temporary nature of population changes due to slashburning or herbicide use cannot be made (see the Savidge example above, in which sprayed and unsprayed plots were surveyed for birds six years after spraying).

Example 3: A review of spider management in agroecosystems indicates that spiders are important enemies of aphids, mites, and lepidoptera larvae and eggs and yet very few studies have been made of the effects of pesticides. The authors of one such study "emphasize the role of proper pesticide timing, the importance of a strictly local application, and the need for selective pesticides." (Mansour, et al., 1983)

Do we know what spiders are present in the forests we propose to spray? Do we know their role in those areas? Do we know the hazards posed to them by sprays? Do we know how and at what rate the various species recolonize an area when eliminated? (One would have thought butterflies could recolonize, but the scientific evidence indicates otherwise, as noted, with extensive documentation, in Thomas, 1984).

If we know none of this, we must admit that we do not know what we will be doing to spiders or their role in the ecosystem when we spray herbicides.

Example 4: In relation to the realization that fish living in polluted waters are being found to exhibit high rates of cancer, U.S. Fish and Wildlife Service worker Paul Baumann writes, "The pollutants we're dealing with these days don't cause those horrific acute fish kills we saw 15 years ago, but rather a whole plethora of delayed reaction effects - strange and subtle sorts of things, which, in the end, could completely knock out a population." (Millyard, 1984)

Given the array of fish living in the Pacific Northwest Region, how many studies have been performed on subtle, delayed responses of fish to herbicide exposure?

Example 5: Pimentel (1980) writes of birds, "Numerous studies have documented that sublethal residues can increase susceptibility to disease, starvation, and other environmental stresses [citations]. Reduced reproductive success in many species of birds, disrupted metabolic processes such as vitamin A utilization, and behavioral effects such as delayed migratory activity have all been linked to low level pesticide exosure [citations]."

Example 6: Writing of effects on invertebrates and microorganisms, Pimentel (1980) writes, "Perhaps more important than the effects on fish and wildlife are the effects of pesticides on insects, earthworms, fungi, bacteria, and protozoa found in soils. These small organisms are essential to the proper functioning of all ecosystems since they break down wastes, permitting the vital chemical elements to be recycled in the life system. Bacteria and fungi make nitrogen and other elements available to plants.... [N]o quantitative data exist concerning the overall impact of pesticides on soil organisms and what this may mean economically to the environment, agriculture, and society as a whole [citations]."

Unless we are to disregard this passage, it simply says that some of the most important components of the forest ecosystem may be affected in ways of which we are almost totally unaware. It is no small factor in calculating "risk" to wildlife and the forest ecosystem.

2. The EIS should attempt to present all studies that indicate potential wildlife hazards posed by slashburning and herbicide use (as well as other vegetation management methods).

This should be done both for hazards related to specific herbicides and those related to herbicide treatment of vegetation in general and slashburning. It can be done with the help of charts, and it can incorporate laboratory and field experiments and studies. It of course should cite a reference for each study.

This survey of indicators of risk can be followed by a brief (but documented) discussion of the types of studies that are available indicating little or no risk of certain impacts to certain species or groups of species under certain conditions. This discussion is necessary to (a) establish the degree to which wildlife effects have been studied for a specific herbicide or the use of herbicides in general or slashburning; and (b) discriminate among herbicides, conditions, vegetative complexes, etc. in which projects can be attempted with the least adverse impacts.

Because of the inevitably meager data base, this latter discussion will not be able to establish the "safety" of herbicides or slashburning.

A survey of indicators of risk would stand in contrast to the usual approach to wildlife risk analysis in recent EISs in which either (a) a literature survey merely throws everything together into paragraph after paragraph: well-done and poorly-done studies showing no, minor, and potentially major adverse impacts, or (b) the reader is merely referred to the literature survey in another EIS or in the Forest Service herbicide background statements --- and the final conclusion is that the alternative using herbicides is preferred. This is inadequate, indiscriminate, unmindful of major risks, and a meaningless exercise.

A survey focusing on evidence of risk, on the other hand, is useful for a number of reasons:

(a) It begins to approach the NEPA mandate to discuss "any adverse environmental effects which cannot be avoided should the proposal be implemented," including "direct effects and their significance....[and] [i]ndirect effects and their significance" (40 CFR 1502.16).

(b) It can begin to provide a basis for comparing EIS alternatives at least in part on wildlife concerns.

To the degree that hazard is due to the toxins themselves, those methods that employ nonchemical methods may be less hazardous for wildlife.

To the degree that hazard is due to physical alteration of the soil by slashburning, those methods that reduce such soil alteration may be less hazardous for wildlife.

To the degree that hazard is due to physical removal of vegetation, those methods that selectively eliminate vegetation or that reduce the amount of vegetation destroyed may be less hazardous for wildlife.

(c) It can be easily contributed to by other agencies and the public: if they are aware of other studies indicating potential adverse impacts, the EIS team can be alerted to such studies during the comment period and the list of potential hazards posed by herbicides and slashburning can be extended.

(d) It provides a basis for discriminating among the various herbicides when and if decisions need to be made to employ an herbicide on a specific site under specific conditions. Likewise, it can help identify those situations in which slashburning is most likely to have adverse impacts and should be avoided.

(e) It can alert the Forest Service to critical problems that need field research. Some of this research can be included as part of a slashburning or herbicide project.

(f) By frankly admitting potential risks, the Forest Service indicates that it is attempting to practice sound forestry management rather than trying to simply justify its program.

74

USDA Forest Service
1720 Peachtree Rd, NW
Atlanta, GA 30367

Peter Cuthbert
17023 David Blvd
Friendswood Tx
77546

July 27, 1988

To The Forest Service:

I understand the need for vegetation management in the National Forests, but I fail to see why you prefer methods that take such a heavy toll on the environment. Of all the alternatives in the Draft Environmental Impact Statement for the Vegetation Management plan in the Coastal Plain/Piedmont, alternative G is one of the worst!

1

Please use a sensible plan. Use Alternative C.

Sincerely
Peter Cuthbert

Response to Comments in Letter No. 74

From: Peter Cuthbert

Comment No.	Response
1	The commenters' preference for alternative C was included in the content analysis for all comments received. Alternative C does have some of the favorable effects listed, but also has effects (such as use of less effective treatments and inability to meet Forest Land and Resource Management Plan output objectives) considered unfavorable by other commenters. All alternatives, including C and G, have positive and negative effects which are summarized on pp. II-68 through II-73 of the Draft EIS. Also refer to mitigation measures and management requirements in chapter II (pages II-35 through II-54 in the Draft EIS) for clarification on how adverse effects are mitigated.

75

A.F. Clewell, Inc.
Consultants in Botany, Ecology, Wetland Science

1345 University Parkway
Sarasota, Florida 34243
(813) 355-5065

August 9, 1988

USDA Forest Service
Attention Rm. 362S
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

RE: Draft EIS, Vegetation Management in the Coastal Plain/Piedmont

Dear Reader:

Congratulations on the production of a thorough, well written document, in which the issues are clearly presented in depth and in which the conclusions reached are reasonable and responsible. I support preferred alternative "G."

I urge you to incorporate the following statement, or ideas therein, into the Final EIS:

1 Management of lands in which the ground cover is dominated by Aristida stricta or its ecological equivalent species shall be limited to those techniques that foster the perpetuation of that ground cover indefinitely.

"Lands" are longleaf pine sandhills and flatwoods (including flatwoods that have been colonized by slash or loblolly pine following the removal of old-growth longleaf pines) and associated savannahs (including pitcher-plant bogs).

"Dominated" connotes common occurrence and regular dispersion, not necessarily the most important species in terms of density or biomass. "Ecological equivalent species" include Sporobolus curtissii in wetter sites, Schizachyrium tenerum to the west of the range of Aristida stricta, and similar dominant grasses that serve to carry frequent surface fires or did so at the time of colonization by Europeans. Andropogon virginicus, which proliferates only on disturbed soils, would not be "ecologically equivalent."

Techniques that "foster the perpetuation of the undergrowth" are frequent fires, especially summer fire during the natural lightning season. Mechanical and herbicidal techniques would be limited to restoring sites in which brush, such as Serenoa repens, was too dense to reduce to its original abundance by fire alone. Timber harvest and all other activities would be performed in such a manner so as not to disturb the soil.

The rationale for this policy is that wiregrass lands and associated habitats once comprised the most abundant terrain on the entire coastal plain. Now they are becoming rare, at least in an undisturbed and well managed condition. National forests will soon be the last museums of this biological heritage. Such lands require ardent protection by the Forest Service. Timber harvest is permissible, as long as the soil remains in tact.

Response to Comments in Letter No. 75

From: Andre F. Clewell

Comment No.	Response
1	This suggestion is best handled at the project level. The EIS displays the effects of the methods analyzed on various woody and herbaceous plant species. The site-specific analysis will determine the appropriate tool and its intensity to attain project objectives. The Coastal Plain forests that have areas dominated by Aristida stricta will analyze at the project level appropriate tool use and intensity in order to maintain that particular ground cover.

I particularly favor the use of fire to "maintain fire-dependent species and ecosystems...and to manage wilderness and threatened and endangered species and their habitat." (From page II-11.) The use of fire in pine-palmetto flatwoods in the Bradwell Bay Wilderness (see page III-21) is sorely needed. If such a fire goes out of control because of too much fuel accumulation and damages old-growth vegetation, so be it. I will defend such burning, as long as prudent procedures for burning were developed and followed.

2 The statement on page II-44 could be strengthen regarding (7) Firelines. Previous firelines should be reused to the greatest extent possible, so that undamaged habitat is preserved, particularly in wiregrass lands.

With regard to research needs (page IV-129) I particularly favor Item #6 on the composition, etc., of understory plant communities. The floristic composition is poorly known for undergrowth in nearly all forest communities. I'm sure there are some important interrelationships between undergrowth plants and canopy trees with regard to biological control of pests, efficiencies of nutrient cycling, mycorrhizal transfer of nutrients, and control of runoff.

I sense unwarranted paranoia with regard to research needs on the effects of herbicides on wildlife (page IV-130, #13, #14). I would prefer to see the research effort shifted to long term monitoring for herbicide accumulations in the groundwater and aquifers.

Sincerely,

Andy Clewell

Andre F. Clewell, Ph.D.

(Continuation of Forest Service response)

2 This revision has been made to the mitigation measure in question in the Final EIS.

76

USDA Forest Section, Southern Region
1720 Peachtree Road, NW
Atlanta, GA 30367

August 9, 1988

Dear sirs:

1 Regarding the Vegetation Management EIS Draft, we wish to inform you that we favor Alternative C, for the following reasons:

1) limited site disturbance is the best way to implement your goal of"managing vegetation for some public benefit," as well as timber harvesting. Recreational users go to forests for the diverse beauty of understory trees, shrubs, vines and plants harboring wildlife, not to clear cuts or pine plantations.

2) manual clearing, low intensity burning and manual use of herbicide where and when necessary will be more careful and disciplined than largescale aerial herbicide spraying with wind drift. Endangered species such as the red cockaded woodpecker will have more of a chance with manual management, as will rare plant species.

3) manual management will provide more jobs, a need which all southern states must address.

4) the chance of herbicide runoff into water sources will be less with manual management.

Sincerely,

Caroline and Charles Callery

Caroline and Charles Callery

Response to Comments in Letter No. 76

From: Caroline & Charles Callery

Comment No.	Response
1	The commenter's preference for alternative C was included in the content analysis of all comments received. Alternative C does have some of the favorable effects listed, but also has effects (such as use of less effective treatments and inability to meet Forest Land and Resource Management Plan output objectives) considered unfavorable by other commenters. All alternatives have positive and negative effects which are summarized on pages II-68 through II-73 of the Draft EIS.

77

Bruce Becker
814 Moody St
League City, TX
77573

To the Forest Service,

Having read the info on the Vegetation management Plans in the Coastal Plain Piedmont, I can't believe you prefer Alternative G! Talk about overkill!

1 Please use a more sensible plan like alternative C.

Sincerely,
Bruce Becker

Response to Comments in Letter No. 77

From: Bruce Becker

Comment No.	Response
	The commenter's preference for alternative C was included in the content analysis of all comments received. All alternatives have positive and negative effects. While the commenter finds C favorable, other commenters found unfavorable effects occurring. A summary of effects by alternatives is found on page II-68 through II-73 of the Draft EIS.

78

MISSISSIPPI FORESTRY ASSOCIATION
THE VOICE OF FORESTRY
SUITE 201
620 NORTH STATE STREET
JACKSON, MISSISSIPPI 39202-3398
(601) 354-4936

August 9, 1988

Mr. Steve McCorquodale
US Forest Service
1720 Peachtree Road, NW
Atlanta, GA 30367

Dear Mr. McCorquodale:

1 After thorough review of the Vegetation Management DEIS by our Environmental Affairs and Wildlife Committee, the Mississippi Forestry Association would like to go on record in support of Alternative G as the preferred alternative to the plan.

MFA represents landowners and foresters from both the private and public sector and feels this is the best alternative for managing the affected lands in our state.

Cordially Yours,

Steve Corbitt
Executive Vice President

GEORGE FAURE
PRESIDENT
MICKEY WEST
VICE PRESIDENT
JAMES MARTIN
TREASURER
STEVE CORBITT
EXECUTIVE VICE PRESIDENT

Response to Comments in Letter No. 78

From: Steve Corbitt

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received.

79, 84, 87, 92, 93, 98, 99, 100, 111, 118, 119, 120, 125, 126, 128, 133, 137, 148, 149, 170, 175 THRU 264, 281, 283, 284, 287, 288, 289, 290, 291, 303, 315, 317, 318, 327, 328, 331, 335, 336, 348

The above letter numbers are all of the same form and content and a sample of this form and content is reproduced below. A consolidated response to these comments is printed in the block to the right. These numbers also appear next to the names of persons who sent them in chapter VI (Volume III).

FROM:

CAROL ANN FISHER
Name

P.O. Box 502
Street or P. O. Box

PORT BOLIVAR, TX 77650
City, State, Zip

Carol Ann Fisher
Signature

(409) 684-8236
Telephone #

Forest Service
Attn: Room 362S
1720 Peachtree Rd NW.
Atlanta, Georgia 30367

On the reverse of this card is what I think of the Forest Service Vegetation Management Proposals...

1. The Forest Service should reject the clearcutting bulldozing-herbicide approach to forest management.

2. The Forest Service should limit its reduction of hardwoods and other native plants to what is necessary to protect public health and safety.

3. The Forest Service should shift mainly to selection management—growing mixed stands of hardwoods and pines, and selling individual trees from each stand every several years, always keeping the forest cover for natural reseeding, for hunting and for people's enjoyment.

4. Congress should direct the Forest Service to change harvesting methods from clearcutting to selection.

Response to Comments in Letter No. __

From: Postal Cards

Comment No.	Response
1	The question of "how to harvest timber" is one which is determined to be beyond the scope of this EIS. This issue is related to requirements of the National Forest Management Act and Forest Land and Resource Management Plans recently developed in response to the act. The Regional Forester's scoping letter of 1/21/87 and the May 1987 tabloid clearly state that this EIS will not reanalyze this NFMA-planning issue. See response to comments in Letter No. 14, Comment No. 1. See also pages I-6 and I-7 of the Draft EIS.
2	Alternative B addresses this concern. Section II. B. in the Final EIS contains a newly-expanded description of this and the other alternatives. Alternative B has some beneficial effects, but it also has effects considered unfavorable by many people. See sections II. F. through II. H. and section IV. N. for discussion of these effects.
3	See response to your Comment No. 1.
4	See response to your Comment No. 1.

80, 88, 89, 90, 91, 101, 102, 103, 104, 105, 106, 107, 108, 112, 116, 117, 121, 122, 123, 127, 129, 130, 131, 132, 134, 135, 136, 138, 139, 140, 155, 156, 157, 158, 159, 162, 163, 164, 169, 171, 172, 269, 280, 292, 313, 316, 322, 323, 324, 325, 326, 332, 333, 337, 338, 339, 341, 343, 344, 345, 346, 347

The above letter numbers are all of the same form and content and a sample of this form and content is reproduced below. A consolidated response to these comments is printed in the block to the right. These numbers also appear next to the names of persons who sent them in chapter VI (Volume III).

TO THE FOREST SERVICE AND CONGRESS:

Here is what I think about Forest Service Vegetation Management Proposals:

1. The Forest Service should seriously reduce the clearcutting-bulldozing approach;
2. The Forest Service should limit its reduction of hardwoods and other native plants to what is necessary to protect natural resources and public health and safety;
3. The Forest Service should shift mainly to selection management--growing mixed stands of hardwoods and pines, and selling individual trees from each stand every several years, always keeping the forest cover for natural reseeding, for hunting and for people's enjoyment;
4. Congress should direct the Forest Service to change methods from clearcutting to selection.

SIGNED Carole Kronenberg

ADDRESS 6211 Bedford Drive Tyler TX 75703

TELEPHONE (214) 561-0314 Occupation Nurse

Response to Comments in Letter No. __

From: Postal Cards

Comment No.	Response
1	The question of "how to harvest timber" is one which is determined to be beyond the scope of this EIS. This issue is related to requirements of the National Forest Management Act and Forest Land and Resource Management Plans recently developed in response to the act. The Regional Forester's scoping letter of 1/21/87 and the May 1987 tabloid clearly state that this EIS will not reanalyze this NFMA-planning issue. See response to comments in Letter No. 14, Comment No. 1. See also pages I-6 and I-7 of the Draft EIS.
2	Alternative B addresses this concern. Section II. B. in the Final EIS contains a newly-expanded description of this and the other alternatives. Alternative B has some beneficial effects, but it also has effects considered unfavorable by many people. See sections II. P. through II. H. and section IV. N. for discussion of these effects.
3	See response to your Comment No. 1.
4	See response to your Comment No. 1.

81

August 11, 1988

Forest Service
1720 Peachtree Rd, NW
Atlanta, GA 30367

Gentlemen:

Re Forest Service Vegetation Management

1 Proposals:

- Clearcutting & bulldozing should be kept to a minimum - only for limited emergencies -
- Reduction of hardwoods & other native plants should be done only when necessary to protect public health & safety.
- Selection management (growing mixed stands of hardwood & pines, selling individual trees occasionally, always keeping forest cover for natural reseeding & protection of native wildlife) should be the method of choice.
- Congress should require the Forest Service to change from clearcutting to selection. Clearcutting is incompatible with multiple use as directed by law

Thank you -

Mrs Roger Montgomery
1703 North St
Nacogdoches, TX 75961

Response to Comments in Letter No. 81

From: Mrs. Roger Montgomery

Comment No.	Response
1	See response to comments in Letter No. 79, Comment Nos. 1, 2, 3, and 4.

82

Florida Office:
P.O. Box 13864
Gainesville, Fl
32604

EARTH FIRST!
BIO-DIVERSITY PROJECT



9 August 1988

John E. Alcock
Regional Forester
USDA Forest Service
1720 Peachtree Road, N.W.
Atlanta, GA 30367

Dear Mr. Alcock:

We have reviewed the DRAFT EIS for Vegetation Management in the Coastal Plain/Piedmont, and wish to make several comments and suggestions.

A primary trend we note in this EIS is towards increased, aggressive use of herbicides, and continued use of mechanical site preparation, in our national forests. In spite of the apparent thoroughness of "scientific" aspects of this study, much is left unanswered or unknown, i.e., long-term effects, synergism, soil and water degradation, and other side effects of herbicide application (especially broadcast application) and mechanical site preparation. The alleged benefits of herbicides (e.g., lower cost) do not, in our opinion, warrant their widespread use in light of anticipated and unknown ecological risks. The negative effects of mechanical site preparation on soil and groundcover integrity are well known, and are severe enough to warrant complete elimination of this practice on public lands.

1

2

Perhaps the most significant risk of increased herbicide use, and continued mechanical site preparation, is long-term effects on biodiversity. Mechanical site preparation and herbicides both disrupt natural biodiversity and ecological processes, primarily through their impacts on biomass, composition, and abundances of groundcover vegetation. These impacts, however, are not adequately documented in the EIS. For example, wiregrass (Aristida stricta and other species) is considered by many biologists to be a "keystone species" of the southeastern coastal plain. Wiregrass is highly flammable and encourages frequent, low-intensity ground fires that create suitable habitat for many other herbaceous plants and hence maintains one of the highest groundcover diversities known on Earth. The deleterious effects of mechanical site preparation

3

Response to Comments in Letter No. 82

From: Florida Earth First!

Comment No.	Response
1	The Draft EIS displays the effects of five methods of vegetation management. In the Coastal Plain/Piedmont, methods other than herbicides are projected to be used on 91 percent of the total acres treated in the preferred alternative G in the Draft EIS (page II-9); while herbicide use comprises approximately 9 percent of the entire vegetation management program. While alternative G does increase the use of herbicide, selective treatments are favored over broadcast treatments. See paragraph 2, last sentence, on page II-8 of the Draft EIS. Also, mitigation measure number 5 on page II-48 of the Draft EIS specifically states that preference is given to those applications that affect the minimum amount of vegetation (target selective) and cause minimum site disturbance while still meeting project objectives and posing least risk to people, wildlife, and other environmental elements. Additionally, under mechanical tools, raking and heavy disking are not allowed in alternative G. The Final EIS also contains tables in chapter II, part B, which display for each alternative the projected acres by method for each activity listed on pages I-1 to I-2 of the Draft EIS and clearly define the amounts of selective and non-selective herbicide treatments for each alternative. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS. In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." (40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier

(letter continues on next page)

2 Of all mechanical tools, only raking, bedding, and heavy disking seriously reduce ground cover, and only raking impairs long-term soil productivity (pages IV-79 to IV-82 of the Draft EIS). The preferred alternative does not allow raking.

3 Please see response to comments in Letter No. 265, Comment No. 6.

on wiregrass and associated groundcover are well known, but the effects of broadcast herbicide application are less well studied. This EIS does little to correct this deficiency.

4 The alternatives suggested in the EIS are, in our opinion, all inadequate. Most alternatives, including the preferred alternative (G), involve treatments on too high a percentage of forest land, and are too intensive, i.e., they continue the ecologically disruptive practice of mechanical site preparation. The increased herbicide use called for in many alternatives, including the preferred alternative (G), is totally unacceptable, for reasons cited above. The least damaging alternative is probably alternative B, although this alternative is still unacceptable ecologically because of its reliance on herbicides.

5 We request that a new EIS be prepared, with a new set of conservation-oriented alternatives, with vegetation management techniques designed explicitly to mimic the natural disturbance regime. In this regard, increased use of prescribed fire, timed correctly as to season (late spring and summer) and frequency (e.g., every two to five years for longleaf pine systems in Florida) would be appropriate, as would allowing natural wildfires to burn whenever possible. These natural (or quasi-natural) fires would accomplish many of the vegetation management objectives spelled out in the EIS, without the deleterious side effects of herbicides and mechanical site preparation.

6 Mitigation measures proposed in the plan also seem insufficient to address the overwhelming number of potential problems associated with herbicide applications. Proposed buffer zones from streams seem grossly inadequate to prevent herbicide contamination, and do not err on the side of protection of critical biological resources. We also wonder if the personnel assigned to inventory sites for Threatened and Endangered species 7 will be sufficiently trained and qualified to conduct these surveys.

In conclusion, we are not satisfied with the DRAFT EIS, because of its ecological deficiencies, and request that a new EIS be prepared. With the U.S. Forest Service's increased interest in and (on paper, anyway) commitment to biodiversity 8 concerns, we are disappointed that management-oriented documents such as this do not reflect this increased interest and sophistication. The Forest Service recognizes that at least 70 of the appeals of forest plans nationwide have substantive criticisms on biodiversity issues. A Forest Service National Steering Committee on Biodiversity has also been formed, and includes many excellent Forest Service scientists. Yet this EIS

4 Eight alternatives are developed in response to issues and management needs, such as meeting output objectives in plans. To provide clear distinctions between alternatives, several factors are varied such as methods available, intensity of treatments, frequency of treatments, total acres treated, and acres treated by any specific method. While management needs are considered, three alternatives (A, B, and C) fail to provide outputs at plan levels. High intensity mechanical and prescribed fire treatments are eliminated in all alternatives except F and H. While mechanical site preparation techniques may be disruptive to some plant species, there are others which need substantial disruption to reestablish (such as longleaf pine). Availability of many tools within an alternative allows us to meet the needs of a wide variety of species.

Additionally, prior to any vegetation management treatment, projects will undergo site-specific analysis (mitigation measure number 1 on page II-35 of the Draft EIS) which determines appropriate methods and tools, intensity and selectivity of applications, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. This includes the examination and evaluation of a reasonable range of alternative methods, including the use of methods which do not involve herbicides.

5 Alternatives C through G are very conservation-oriented and alternatives A and B are more oriented toward preservation. Dormant- and growing-season prescribed burns are available in all alternatives except A, and the use of growing-season burns is improved in alternatives D, E, G, and H. Timing and frequency of burns are evaluated in each alternative. While more frequent growing-season burns benefit some ecosystems such as longleaf pine-wiregrass, others (especially those with substantial hardwood under- or mid-stories) would be adversely affected by these types of burns. Again, the analysis accounts for a multiplicity of needs throughout the Coastal Plain and Piedmont area rather than concentrating on a single species or ecosystem.

6 The analysis performed in the risk assessment and EIS indicates that the mitigations proposed are sufficient to protect the environment and human health. For protection of water, see response to comments in Letter No. 70, Comment No. 3.

7 Professional and technical employees receive training through university, college, or technical training schools, continuing education courses, workshops, and on-the-ground identification training sessions.

8 See response to comments in Letter No. 265, Comment No. 6.

is ecologically ignorant and destructive of biodiversity. We, the ecologically-informed and interested public, expect and deserve better.

Sincerely,

Craig L. Gillikin, M.S.

Reed F. Noss, Ph.D.

Auburn University
Auburn University, Alabama 36849-5414
College of Sciences and Mathematics

Department of Zoology and Wildlife Science
331 Funchess Hall

Telephone (205) 826-485

August 11, 1988

USDA Forest Service
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

Ref: DRAFT CP/P
Attn: Room 3625

To The Vegetation Management EIS Team:

I appreciate having had an opportunity to review the Draft EIS on "Vegetation Management in the Coastal Plain/Piedmont. My comments and impressions are as follows:

1. With some notable exceptions, the Team has covered the subject well and has been candid in describing and comparing impacts.

1 2. I subtly perceived, however, that the bias toward "Alternative G" might be based more on short-term expediency rather than on long-term well-being of the forest ecosystems.

3. Although much of the document deals with use of fire, some of the opinions of fire ecologists seem to have been understated or omitted. These include:

2 a. frequent dormant-season burns constitute an un-natural fire regime and on some soils cause abnormally high densities of undesirable plants, notably bracken fern (Pteridium aquilinum). This plant is poisonous to many animals, has been indicted as being carcinogenic, and is causing problems virtually on a world-wide basis. The Team may wish to read the following, "Bracken: an increasing problem and a threat to health," (1980), by J. A. Taylor, in "Outlook on Agriculture," vol. 10, no. 6, pp. 298-394; and "Bracken--Ecology, land use and control technology," R. T. Smith and J. A. Taylor (eds.), Parthenon Publishing, G. B. 464 pp. The Team might be interested in discussing this matter with Dr. Ron Myers, Southeastern Fire Steward, the Nature Conservancy, Tall Timbers Research Station, Tallahassee (904-893-4153). The Team might also wish to read an article by Dr. Steve Christman, 1983, "Timber management is not wildlife management," in Proc. Forth Ann. Mtg. Gopher Tortoise Council, pp. 5-18.

Response to Comments in Letter No. 83

From: Robert Mount

Comment No.	Response
1	Comments noted. See response to comments in Letter No. 14, Comment No. 1.
2	We have consulted the citations you mentioned and have made additions to the text of chapter IV in the Final EIS.

According to L. Landers, Tall Timbers (pers. comm. 1988), one of your technical consultants, the "natural" longleaf pine savannas that once characterized much of the Lower Coastal Plain of the Southeast were maintained by summer fires that occurred on the average of once every 2-3 years.

4. I appreciate your calling attention to the fact that the cumulative impacts of herbicides on wildlife are unknown, and that some herbicides can move through sandy soils (and thus become pollutants of ground water). The Team is, I am confident, aware of a growing concern over ground water pollution by pesticides and other potentially dangerous chemicals.

3 5. Although the Team discusses the potential for harm by herbicides to watercourses, I don't recall its having mentioned the potential adverse impacts of these chemicals or swamps, marshes, "pitcher plant bogs," and "small, isolated wetlands" of the type described by Moler and Franz (1987). (The Team may wish to review this reference, "Wildlife values of small, isolated wetlands in the southeastern coastal plain.." pp. 224-241, in Third SE Nongame and Endangered Wildlife Symposium Proc., Ga. Dept. Nat. Res., Game and Fish Division).

4 6. As the Team is aware, the numerous and often varied phytoplanktonic components of aquatic systems, especially lentic ones, constitute important, and in some cases the most important producers in the systems. I do not recall the E. I. S. having made any reference to the actual or potential effects of herbicides on any species of phytoplankton. I view this as a major deficiency, in the event the subject was not covered.

5 7. The E. I. S. contained no information on the seasonal variable involved relative to impacts produced by different management "tools," except as pertains to burning. The season during which any given activity is performed is very important with respect to the impact the activity will produce, and should be covered in the E. I. S.

6 8. The E. I. S. (IV-72) states that gopher tortoises may benefit from chopping combined with herbicide application or burning. Tortoises benefit from burning and in some habitats by chopping (during the season of tortoise inactivity). The potential for harm to the tortoise and/or its habitat from herbicides, however, is unknown and in the overall sense is more likely to be detrimental than beneficial.

7 9. On page IV-71, the second sentence in the last paragraph needs the word "no" between "be" and "means."

(Continuation of Forest Service response)

3 Page IV-87 of the Draft EIS has been revised in the Final EIS to assess effects on wetland vegetation.

4 The scope of this document is vegetation management in the terrestrial environment. Aquatic organisms are only considered as affected by herbicides through accidental spills, runoff, leaching, etc., all of which are addressed. Although not addressed in detail, herbicides spilled into open water would negatively affect at least some portion of the resident plant species. Mitigations are proposed in Chapter II of the EIS to prevent accidents; should an accident occur, the mitigation section requires rapid containment and cleanup.

5 We agree that season of use is a very important variable for any tool. In addition to the discussion under prescribed fire, seasonal effects of the herbicides were evaluated on page IV-43 of the Draft EIS, and for biological methods on page IV-45 of the Draft EIS. Discussions on the seasonal impact of mechanical and manual tools have been added to the Final EIS.

6 Review of the gopher tortoise data presented in the risk assessment (page 8-24, appendix A in the draft EIS) indicates that there is minimal likelihood of adverse effect on gopher tortoises or their habitat. See also discussion in Appendix D.

7 This is a typographical error which has been corrected in the Final EIS.

8 10. Of the alternatives proposed, a modified version of "G" seems most appropriate for National Forest Lands, with the primary modifications being a continuation of the prohibition against aerial application of herbicides and a decrease in total herbicide usage by 27,000 ares from the amount proposed.

In view of our limited knowledge of impacts of herbicides on our ecosystems, an increase in use of these chemicals on our public lands can hardly be justified.

Thanks for the opportunity to comment. I view the Forest Service as one of our more responsive public agencies and I appreciate the good work being done.

Sincerely,

Robert H. Mount
Professor Emeritus

RHM/yk

(Continuation of Forest Service response)

8 Data presented in the risk assessment and summarized in the EIS indicate that there is little potential for negative health effects from aerial application of the herbicides evaluated. Mitigations presented in chapter II of the EIS were found to be sufficient to protect the environment. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

85

Dr. Thomas M. Pullen, Jr.
Box 1655
Vicksburg, MS 39181
10 August 1988

USDA Forest Service
Southern Region
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

Dear Vegetation Management EIS Team:

I have completed review of the April 88 Draft EIS on vegetation management in the Coastal Plain/Piedmont.

I found the Draft EIS to be very readable and informative concerning many issues but, unfortunately, I also found it to be scientifically inadequate with reference to discussion of numerous issues. It also was lacking in a
1 rigorous examination of the relative economic merits of various vegetation management techniques and it did not provide sufficient detail regarding management requirements and mitigation measures. In short, the document does not build a defensible case for recommending alternative G. In fact, the Draft EIS's primary accomplishment is to demonstrate conclusively that, due to data shortcomings, aerial application of herbicides should not be adopted due to all the unknown effects such use could have. The Draft EIS also makes it abundantly clear that the Forest Service still maintains a major bias towards growing pine trees and maximizing timber production at the expense of other forest resources.

Attached are copies of selected pages from the Draft EIS complete with handwritten marginal notations to indicate the scope of my concerns with the
2 report and its recommendations. I urge you to reassess your vegetation management options and adopt an alternative that does not call for aerial application of herbicides.

Please send me a copy of the Final EIS and Record of Decision when they are available.

Thank you very much.

Sincerely,

Thomas M. Pullen, Jr. PhD

enclosure

Response to Comments in Letter No. 85

From: Thomas M. Pullen, Jr.

Comment No.	Response
1	Rigorous economic analysis was not desired by most people who commented. As a matter of fact, many people suggested that if any economic analysis is done that it be a simple display of costs. Most found analyses such as those done in support of Forest Land and Resource Management Plans to be overly complex, confusing, and extremely difficult for the lay person to understand. Because this EIS incorporates the goals and objectives of plans, it necessarily incorporates plan's economic analyses, which, for those who request more detail, respond to that need. Section II.E is a detailed description of management requirements and mitigation measures. See also response to comments in Letter No. 14, Comment No. 1; and Letter No. 32, Comment No. 4.
2	As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

3

12. Unrelated Comments

Several comments were received on a wide range of issues either not related to this project or beyond its scope. These comments, though meaningful, are not incorporated in the issue statements. Some categories of comments which won't be addressed are silvicultural systems, harvest cutting methods, off-road vehicles, littering, road construction, wilderness designation, military uses, minerals, forest signs, landscape-wide diversity, illegal activities, southern pine beetle, beavers, or multiple-use in a general landscape-wide sense.

Page I-6

This is one of the major shortcomings of the EIS. Landscape wide diversity issue must be considered to fully evaluate herbicide effects — particularly aerial application of herbicides. Cumulative impacts over a long period to large areas of the landscape could have serious and far reaching landscape-wide effects

A. ALTERNATIVE DEVELOPMENT PROCESS

Several alternatives were developed to respond to issues (Chapter I) and cover a broad range of possible mixes of vegetation management methods. Issues were based on public comments received in early 1987 and on management concerns. Themes were developed to respond to these issues and were shared with the public in May 1987. In June 1987, an interdisciplinary team considered additional public comment and determined the mix of methods appropriate to each theme. Finally, the team compared mixes of methods to find similarities, combined where appropriate, and wrote alternative statements.

Each alternative conforms to the following guidelines:

1. Considers the goals, objectives, and decisions of Forest Land and Resource Management Plans;

Page II-1

2. Should not be constrained by funding;

Not a realistic guideline!

3. Responds to issues (Chapter I);

4. Should be reasonable and implementable;

5. Conforms to Federal laws and regulations (unless the alternative contemplates a specific change in laws or regulations).

II-1

h. Bedding Tools

Bedding tools plow, mix, and loosely pile topsoil and litter into elevated beds. Bedding is normally done on wet sites having slopes of 3 percent or less. Bedding tools consist of one or more sets of disks pulled by a crawler tractor. The disks plow toward each other, piling topsoil and litter into a bed. Some bedding tools utilize choppers or rollers behind the plowing disks to enhance bed settling and shaping. Beds range from 6 to 8 feet wide and from 12 to 18 inches high. After soil settling, bed heights range from 8 to 15 inches. Bedding tools are used for preparing sites for artificial regeneration. Prior to using bedding tools, treatments such as shearing, piling, or raking are commonly used to remove logging slash or brush.

4 Page II-18

This is true if offsite species are planted! Bedding should not be used to enable pines to grow where hardwoods would grow if nature were left to do her own thing!

Mixing of topsoil and litter concentrates nutrients in the beds. In level wet areas, the small increase in elevation greatly improves soil drainage. Root systems of seedlings planted in beds become established in unsaturated soil, which improves seedling survival and growth rates.

Bedding is not good forest management. It is rather a tool to convert the forest into a tree plantation. Bedding should not be a part of the recommended plan.

II-18

(Continuation of Forest Service response)

3 Landscape wide diversity is addressed in individual forest plans and is not readdressed in this document. However, herbicide effects, (short-term and long-term), on different types of plants, species composition and structural diversity, and succession are evaluated and displayed in chapter IV on pages IV-41 to IV-44 and also pages IV-59 to IV-62 of the Draft EIS. Discussions on the effects of herbicides on vegetation has been expanded in the Final EIS. See also response to comments in Letter No. 265, Comment No. 6.

4 Bedding is necessary in some areas in order to ensure the early survival and growth of many tree species native to seasonally wet areas through improved microsite development for tree roots, improved drainage, and reduced early competition. Bedding tools are appropriate in the reestablishment of both pine (slash, loblolly, and longleaf), and hardwood (green ash, swamp chestnut oak, and cottonwood) species. The decision to use bedding tools must be made after site-specific analysis determines its suitability based on species requirements, site characteristics, and the effects on environmental elements such as soil productivity, vegetation diversity, wildlife, and threatened, endangered, and sensitive species. See mitigation measure numbers 1 and 2 on pages II-35 and 36 of the Draft EIS for the requirements of site-specific analysis.

Page II-23

5

Who will use of broad spectrum herbicides such as glyphosate do to diversity and relative abundance of native herbaceous plants in areas treated? Is this covered in the discussion of both short-term and long-term effects in the vegetation and landscape-wide sections? If so, the document is not adequate in its coverage of such topics.

GLYPHOSATE

TRADE NAME: ROUNDUP[R], RODEO[R], ACCORD[R], and others.

Glyphosate is commonly used in agriculture and as a home-use product. It controls a broad range of grasses, weeds, and woody brush species. Roundup is registered for uses on orchards, groves, vineyards, and in weed control prior to planting of grains, soybeans, corn, and other food crops. It is also registered for control of grass and weeds in recreational areas, schools, parking lots, and other public grounds. Rodeo is labeled primarily as an aquatic herbicide, but is also labeled for forestry. Accord is registered for forestry, but without the Roundup surfactant, it may be applied to water without Roundup's potential damage. Glyphosate is used in forestry for site preparation and release. Methods of application include cut-surface treatments and foliar spray. Glyphosate is readily absorbed by foliage and primarily affects plants by disrupting photosynthetic processes. Glyphosate has practically no leaching tendency because it binds tightly to soil. In soil, it is highly susceptible to degradation by micro-organisms, being converted to natural products such as carbon dioxide and water. Persistence in soils is about two months or less.

HEXAZINONE

TRADE NAME: VELPAR[R] L, PRONONE[R] 5G, PRONONE[R] 10G, and others.

Hexazinone is used to control wide variety of grasses, weeds, and woody plants. Hexazinone has a number of food crop uses including weed control in blueberries, sugarcane, pineapple, and alfalfa. It is also used extensively in Christmas tree plantations. In forestry, it is commonly used for site preparation and release. Methods of application include foliar spray, basal soil applications, granular applications to soil, and cut surface treatment. Hexazinone is a "soil-active" herbicide, is readily moved into soil, and is absorbed by plant roots with some foliage

PICLORAM

TRADE NAME: TORDON[R] 101, TORDON[R] 101R, TORDON[R] K, and others.

Page II-24

6

Does this mean contamination of the water table in the Coastal Plain where sandy soils are common?

Picloram's uses include noxious weed control, rights-of-way, facilities maintenance, and rangeland improvement. In forestry it is used to control woody plants and weeds. Methods of application include cut-surface treatments and foliar spray. Picloram is primarily a growth regulator. Herbicidal action is a result of absorption through leaves and some uptake through roots. It is easily translocated in plants and accumulates in new growth causing leaves to cup and curl. Picloram is water soluble and can move in sandy soils low in organic matter. It may affect nearby desirable plants outside the treated area which have roots growing into the treated zone. Degradation by soil micro-organisms is slow and primary breakdown is by ultra-violet light. Persistence in soils varies by type of soil and weather but may exceed 100 days.

(Continuation of Forest Service response)

5 The discussions in chapter II of the Draft EIS regarding herbicides are intended to provide a general discussion of each evaluated herbicides' characteristics. The effects of those herbicides on vegetation, both short-term and long-term, are found in the Vegetation section of chapter IV (pages IV-41 through IV-44 in the draft EIS).

6 See response to comments in Letter No. 70, Comment No. 3.

Page II-32

Drift is a primary concern during aerial operations. Uniformly large droplets and relatively heavy pellet weight prevent significant drift from occurring. However, more care must be taken to ensure proper safety standards.

How the stage is set for major disruptions to plants that are not intended to be treated.

7

Aerial operations are broadcast applications, and the pilot has limited ability to treat specific target plants. He can manipulate position and speed of his aircraft, can start or stop herbicide flow, and often has control of the flow rate of the herbicide. But these controls are rather inexact when compared with manual ground applications. Selection of the proper herbicide is critical to the success of an aerial application project.

II-32

8

Page II-44

How is this to be determined?

(4) On severely eroded forest soils, any area with an average litter-duff depth of less than 1/2 inch is not burned in alternatives B, C, D, E, and G.

The purpose of requirements (3) and (4) is to protect soil productivity. Monitoring includes project proposal reviews and post-burn evaluations. Maxwell (appendix B) and the analysis in chapter IV found these measures effective in preventing excessive losses of organic matter and nutrients.

(5) Where needed to prevent erosion, water diversions are installed on firelines during their construction, and the firelines are revegetated promptly after the burn.

(6) Firelines are not located within 30 feet of lakes or perennial or intermittent streams, unless tying into them as firebreaks at designated points. Low-intensity fires with one to two-foot flame lengths may be allowed to back into the 30-foot strip.

Requirements (5) and (6) limit stream and lake siltation. Monitoring is done in project proposal reviews, during burns, and in post-burn evaluations. Cushwa (1970) found that prevention of fireline erosion effectively eliminates sedimentation from many burns.

Wetlands

Page II-44

9

This commonly occurs, thus this means firelines will routinely be plowed around wetlands.

What does this mean?

(7) Firelines are plowed around wetlands only when the water table is so low that wildfire might otherwise burn wetland vegetation and organic matter.

How will the extent of the transition zone be determined?

(8) If a fireline is required adjacent to a wetland, it is not plowed within the transition zone between the upland and wetland vegetation except to tie the fireline into a natural firebreak.

(9) Plowed firelines are not located within savannahs except when needed for resource protection.

The purpose of requirements (7), (8), and (9) is to prevent fireline scars which are very slow to heal in wetlands and savannahs. Additionally, hydraulic integrity of wetlands is protected. Monitoring is accomplished through project proposal reviews and post-burn evaluations. II-44

(Continuation of Forest Service response)

7 It is true that broadcast, including aerial, treatments affect non-target plants more than selective treatments. But mitigations 4 through 7 on pages II-49-50 of the Draft EIS require low application rates, preference for target-selective application, screening out herbicides with significant health or environmental risks, and timing of treatment to minimize non-target impacts. Control of aerial treatments is enhanced by mitigations on pages II-51 and II-53 of the Draft EIS which control drift and its effects by requiring use of large-droplet nozzles and buffers and application during favorable weather. In addition, selective treatment composes at least 70 percent of all herbicide use, except in corridor maintenance, in every alternative but H. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods.

8 Litter-duff depth is determined using up-to-date soil surveys or field measurements during project planning.

9 Mitigation measure number 7 (on page II-44 of the Draft EIS) has been changed in the Final EIS to apply to prescribed fire, so conditions requiring firelines are very rare. In mitigation measure number 8, the transition zone is determined by field surveys considering onsite vegetation, landform, soil, and hydrology. Mitigation measure number 9 has been changed to give examples of resources needing protection.

(11) The best available technology to control smoke emissions is used, including accelerated mop-up, rapid ignition techniques, and burning when moisture conditions limit total smoke production. Burning is not done during stagnant weather nor when weather forecasts indicate that smoke drift into highways, airports, heavily populated areas, or other sensitive areas may be hazardous.

The intent of requirements (10) and (11) is to comply with air quality regulations and protect health and safety. Monitoring includes review of project plans, pre-burn weather evaluations, and during-burn evaluations. USDA Forest Service (1976) and Sandburg and Ward (1983) demonstrated that these measures are effective in limiting smoke emissions.

10

Wildlife Stand Improvement

Page I-45

This has not always been done in the past. How will it be done in the future?

(12) Oak, oak-gum-cypress, and oak-pine stands and inclusions are protected when prescribed fire is applied, either through exclusion of fire or use of low-intensity fires.

This requirement protects tree species which are susceptible to damage from more intense fires. Monitoring is done through review of project plans and through post-burn evaluations.

11

Timing of Burns

Page II-45

Nesting season for what species?

(13) Generally, understory burns are not scheduled during nesting season to avoid disrupting reproductive activities. Forest managers may, however, use burns to meet specific objectives, such as protecting threatened and endangered species (particularly the red-cockaded woodpecker), reestablishing natural ecosystems, controlling brownspot disease and promoting longleaf height growth, and site preparation.

II-45

Application methods which are available for use are listed below from most to least target specific:

1) Cut surface treatments
2) Basal stem applications
3) Directed foliar treatments
4) Soil spot (spot around) treatments
5) Soil spot (spot grid) treatments
6) Manual granular treatments
7) Manual or mechanical broadcast treatments
8) Helicopter broadcast treatments

Page II-49

These meth should not be used.

II-49

(Continuation of Forest Service response)

10 This is a mandatory requirement that has been identified in the environmental analysis for this document as necessary to protect those species susceptible to fire damage. Each forest will have to comply with this mitigation. For some Coastal Plain/Piedmont forests this will mean that they will have to reduce the intensity of fire in these areas or exclude it from some areas altogether; however, this mitigation for many of the Coastal Plain/Piedmont forests, is already a standard practice. Monitoring of project plans will be used to ensure compliance.

11 This generally refers to ground nesting birds such as wild turkey and is determined by each national forest.

12

Page II-50 What about non-sensitive but rare plants?

To protect the following sensitive animal species, the same restrictions apply for 2,4-D: star-nosed mole, Florida mouse, old-field mouse, masked shrew, southern shrew, southern pygmy shrew, and red-backed vole. All plants listed as sensitive are protected by the same restrictions shown for threatened, endangered, and proposed species.

The purpose of this measure is to protect these species from risk of toxicity from the specified chemicals as predicted by the risk assessment (appendix A).

Public Notification

(9) Notice signs as shown in FSH 7109.11 are posted. Special care is taken to clearly post areas with anticipated visitor use. Individuals living within one-fourth mile of an area are notified of proposed aerial treatments during project planning.

Page II-50 Why should the public be placed at risk at all?

The purpose of this requirement is public notification to prevent accidental exposure. Monitoring occurs during project plan reviews and in post-project evaluations. Effectiveness varies with different segments of the public, but experience has shown that people generally avoid risk if they are informed that risk exists.

II-50

(24) Areas are not prescribed burned for at least 30 days after application of an herbicide in alternatives B, C, E, and G.

13

Page II-53 What happens if wildfire starts during this time period?

The purpose of requirement (24) is to allow time for the herbicide to work in the treated area and to provide maximum protection to workers from herbicide residues in smoke. Experience has shown 30 days to be an effective minimum time for fuels to cure while appendix A shows it to be an effective time lapse to mimimize risk.

Buffers

(26) Known aquifers and public water sources are identified and protected.

Page II-53

(27) Herbicides (unless labeling permits application of the formulation to water) are not aerially applied within 100 feet of lakes, wetlands, or perennial or intermittent springs and streams, nor ground-applied within 30 feet.

14

Too narrow a buffer. How will a helicopter pilot recognize wetlands from the air? How will a pilot recognize sensitive species from the air?

(28) When broadcast-applying herbicides, an untreated buffer is left at boundaries with private lands, a 100-foot buffer is left around all water sources, and a 100-foot buffer is left around all private residences in alternatives B, C, E, and G.

(29) Provide sufficient buffering to protect sensitive non-target species where root systems may extend or grow into the active treatment zone when using soil active herbicides.

The purpose of requirements (26), (27), (28), and (29) is to minimize the potential for contamination of water and adjacent lands. Monitoring is done through project plan reviews and on-site supervisory controls. Neary and Michael (appendix C) and Weeks and others (appendix A) determined that buffer stripe significantly reduce herbicide concentrations in water.

12 The term "rare" does not have an official definition which establishes just how rare or vulnerable a species is. "Sensitive" species have been identified as being at risk of becoming Federally threatened or endangered. See the Glossary in the Final EIS for a definition.

13 This statement has been reworded in the Final EIS to more accurately reflect the discussion on pages IV-24 and IV-25 in the draft EIS. The relevant statement lost in the current wording is: "Even in the wildfire scenario (wildfire occurs the same day as application) the worst exposure projected is 46 times less than the TLV." Discussion in the chapter IV section indicates that all of the applied herbicide was assumed to still be present unaltered at the time of wildfire -- and no significant risk is projected for any of the herbicides evaluated. Revision of the statement will reflect that this mitigation responds to concern primarily for botanical efficacy (allowing the vegetation sufficient time to cure) rather than for human health.

14 Site-specific project analysis will be required to identify coordination requirements to ensure that pilots are able to distinguish these areas. The analysis will also include specific coordination requirements for threatened, endangered, proposed and sensitive species, again ensuring adequate protection of these species. Coordination requirements include the marking of areas to be excluded from a particular treatment. In the case of aerial applications typical ground marking devices can include contrasting color markers, anchored streamers or signal panels, spray painting, etc.

Page II-67

This table should include benefit/cost data computed using a reasonable discount rate (not 4%)

Table II-9.--Effects of alternatives on socioeconomics

Alternative	Total Cost	Cost/ Acre	Indirect Cost	Outputs	Expectations	Employment
A No Action	N/A	N/A	Highest	Favors unmanaged	Favors primitive	Lowest
B	$ 2,028,000	$15.54	Much higher than current	Favors unmanaged	Favors primitive	Much lower than current
C	5,972,000	14.40	Higher than current	Favors unmanaged but allows minimum managed	Favors primitive to semi-primitive	Higher than B but lower than current
D	8,757,000	15.82	High for non-herbicide use	Comparable to current	Favors semi-primitive but allows all settings	Higher than current but lower than E
E	7,992,000	14.43	Comparable to C	Slightly lower than current	Comparable to C	Highest
F	8,802,000	15.90	Moderate	Favors both managed & unmanaged	Allows all, but most acres in semi-primitive/ roaded natural	Moderate
G Preferred	8,366,000	15.11	Lower than current	Comparable to current	Comparable to current but more emphasis toward semi-primitive non-motorized/ primitive	Comparable to current
H	12,618,000	15.75	Lower than current	Favors managed	Favors roaded natural/ rural	Higher than current

15

User expectations cover a range from primitive to rural settings. These settings are explained in chapter III. Generally, as more vegetation treatments are done, more expectations toward the rural end of the scale can be met.

(Continuation of Forest Service response)

15 See response to Comment No. 1 of this letter.

3. Oncogenicity (ability to cause either cancerous or non-cancerous tumors) data for 2,4-D, 2,4-DP, fosamine, glyphosate, imazapyr, light fuel oil, limonene, picloram, and triclopyr are unavailable or there is scientific disagreement regarding oncogenicity potential. Mutagenicity data are incomplete (table 3-5, appendix A).

4. The effects on human health of smoke inhalation is another area of uncertainty. Limited evaluation of the risk to workers or the public from unadulterated smoke or from smoke resulting when the fuels have been previously treated with herbicides has been done. While current studies indicate no additional hazard from fuels treated with herbicides, repeated inhalation of unadulterated smoke has been suggested as a cause of some cases of emphasema and lung cancer.

5. Experimental information is not available on the public's exposure to herbicides applied using current methods.

Page IV-9

6. Field studies on residue levels in plants or animals in and around treatment areas are lacking for several herbicides. Comparison of data is very difficult because existing studies use different analytical methods.

This is a huge data gap!

7. Information about synergistic effects of herbicide combinations with other herbicides and with inert ingredients is unavailable.

IV-9

3. Effects of Herbicides

16

Page IV-41

The discussion should address effects on sound native herbaceous plants and agronomic plants.

Herbicides injure or kill plants. The effect of a specific herbicidal treatment, however, is the result of many interacting factors including: the initial vegetation onsite; selectivity of the herbicide and application method used; pattern in which the herbicide is applied; biochemical effects of the herbicide on vegetation; and timing of the treatment. General discussion of the vegetation effects is found below; further discussion of the tools and herbicides is found in chapter II.

Herbicides can be broadcast or more selectively applied. Broadcast application achieves uniform distribution of herbicide. Aerial and ground-mechanical application of granular or liquid products are generally broadcast. Broadcast application is commonly used for site preparation, release, and rights-of-way maintenance. Selective methods allow for incomplete coverage or application to specific targets. Hand applications are generally target or spot specific. Directed foliar sprays, cut-surface treatments, and basal stem treatments are target selective; spot around and basal soil spot treatments are less so; grid soil-spot, banded foliar, and many herbaceous weed treatments are the least target specific of the selective methods. More selective application patterns have less risk of affecting

(Continuation of Forest Service response)

16 Discussion of herbicide effects on plants has been expanded in the Final EIS.

Page IV-48 Another huge data gap!

More research is needed into long-term effects on animals associated with plant communities treated with specific combinations of herbicides and periodic fire. Ongoing research and vegetation classification and inventories planned for the Southern Region will help fill some of these gaps. IV-48

Data gaps which result in uncertainty about reasonably foreseeable significant adverse animal health effects include the following:

17

Page IV-51 This is reason enough to never use herbicides.

- Basic data about acute, subchronic and chronic toxicity are lacking for many animal groups; species-specific information are generally unavailable. Some mammalian data are available for all categories of acute toxicity but are unavailable for several chemicals for birds, insects, fish, aquatic invertebrates, and amphibians.
- Data on animal exposure to herbicide are unavailable. Dermal penetration rates, risk of exposure, and probable rate of exposure are not available.

Page IV-57 Ditto!

- Field studies on chemical residue levels in or on plants in treated areas are lacking for most of the herbicides.
- Carcinogenic and mutagenic potential are unreported for most chemical/animal groupings.
- Data on synergistic effects of herbicides and inert ingredients on wildlife are not available.

Page IV-57 Ditto!

- Data on cumulative/effects of herbicides on wildlife are unavailable.
- Data concerning relationships between specific chemicals and individual species' habitats are, for the most part, unavailable.

IV-51

18

Page IV-88 Too narrow!

Applied at typical rates, herbicides should never occur in ground water supplies at concentrations exceeding a small fraction of EPA's most stringent drinking water standard. Risks of impaired ground water quality are minimal, especially since mitigation measures require a 100-foot buffer around all water sources that reduces herbicide concentrations through mixing and dilution.

IV-88

(Continuation of Forest Service response)

17 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." (40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier regulations. Thus, we have attempted to address both sets of regulations in our analysis.

Using analogs, we have found no evidence of significant adverse impacts to non-target plant or animal populations from the appropriate use of herbicides. Mitigations proposed in chapter II of the Draft EIS, pages II-48 to II-54 are sufficient to protect the environment. Evidence disclosed in the risk assessment and summarized in chapter IV of the Draft EIS indicates that all of the herbicides evaluated (except tebuthiuron) have half-lives of 60 days or less. No significant adverse environemntal effect is forseen from chemicals with half-lives this short. See also response to comments in Letter No. 150, Comment No. 20.

18 See response to comments in Letter No. 70, Comment No. 3.

Page IV-109 This table should include data on benefits per acre computed using a variable discount rate — not 4%.

Table IV-18.--Vegetation management costs per acre by method, Coastal Plain/Piedmont

Vegetation Management Method	Per Acre Cost: Coastal Plain	Piedmont	Average Cost/Acre
Herbicide			68.95
Aerial tools			
Helicopter	77.29*		
Mechanical ground tools			
Boom sprayers	71.88	95.30	
Granular spreader	71.76	95.00	
Hand tools			
Backpack sprayers	70.87	84.20	
Spotgun	78.58	87.65	
Hypo-hatchet	41.59	60.01	
Injectors	54.45	58.91	
Hack & Squirt	88.00	101.43	
Backpack sprayers/injectors	61.50*	70.64	
Injectors/hypo-hatchets	50.00	57.50	
Manual			
Power tools	73.64	88.03	
Chainsaws	59.51	66.83	
Brushcutters	89.86	103.34	
Brushcutters/chainsaws	73.64	88.03	
Hand tools			
Axe	74.60	62.50	
Brushhook	77.57	89.20	
Brushcutters/handtools	90.52	104.10	
Brushcutters/brushhook	72.10	82.92	
Brushhook/chainsaw	71.21	81.89	
Mechanical			
Chopping tools	53.62	75.40	
Crushing tools	94.00	108.00	
Scarifying tools	75.49	86.81	
Shearing tools	57.57	66.00	
Piling, raking tools	87.09	100.00	
Disking tools	54.34	62.49	
Bedding tools	42.12	48.50	
Mowing tools	43.70	50.00	
Chopping/shearing/piling/raking	158.60	182.39	
Chopping/shearing/bedding	122.60	140.99	
Chopping/piling, raking/disking	156.04	179.45	
Chopping/disking	85.43	98.24	
Chopping/disking/bedding	113.51	130.54	
Chopping/bedding	76.60	88.09	
Shearing/crushing	121.30	139.50	
Shearing/piling, raking	129.87	149.35	
Shearing/piling, raking/chopping	158.60	182.39	
Shearing/piling, raking/disking	159.20	183.08	
Shearing/piling, raking/bedding	149.40	171.81	
Shearing/piling, raking/mowing	150.70	173.30	
Shearing/disking/bedding	124.88	143.61	
Shearing/bedding	79.80	91.77	
Piling, raking/disking	113.10	130.06	
Prescribed Fire			
Aerial ignition devices	3.58	11.87	
Belitorch	5.66		
Drip, drag torches	4.64	10.29	

Biological - No data

*Watson, Straka, and Bullard (1987)

Equivalent to the present value of $11,022 — 60 years in the future — at a discount rate of 8.625. Can you show that my forest expenditure of $77/A will provide that kind of economic return? If not, then given all the negative impacts of herbicide use, there would seem to be no justification whatsoever to use herbicides. The same could be said for some of the other methods. A benefit-cost analysis should be done for all!

19

(Continuation of Forest Service response)

19 See response to Comment No. 1 of this letter.

20

This hazard analysis summarizes the findings of laboratory and field studies that indicate the toxicity to wildlife of the herbicides and additives proposed for use in Region 8. In many cases, laboratory studies of domestic animals have been used because of a lack of studies specifically on wildlife. The results of domestic animal studies are considered to be representative of the effects that would occur in similar species in the wild.

Use of data Page 6-1 on domestic animals is not substitute for wildlife studies. Wildlife studies should be done before herbicides are used.

Differences in sensitivity to toxic substances that occur between species are primarily accounted for by differences in metabolism (Calabrese, 1983). Other important factors that also account for these differences in sensitivity are absorption, plasma protein binding, biliary excretion, and intestinal microflora (Calabrese, 1983).

6-1

? Hardly representative! Page 7-2

Table 7-1

Representative southeastern wildlife species

Group	Common Name
Terrestrial vertebrates (class/food habit)	
Birds	
Insectivorous	Common flicker
	Red-cockaded woodpecker[a]
Granivorous	Bobwhite quail
Omnivorous	Eastern bluebird
Piscivorous	Belted kingfisher
Carnivorous	American kestrel
Mammals	
Insectivorous	Southern short-tailed shrew
	Red bat
Granivorous	Eastern gray squirrel
Small herbivorous	Pine vole
Medium herbivorous	Eastern cottontail
Large herbivorous	White-tailed deer
	Domestic cow
Small omnivorous	Cotton rat
Medium omnivorous	Eastern red fox
Large omnivorous	Black bear
Piscivorous	River otter
Carnivorous	Bobcat
Amphibians	
Insectivorous	Woodhouse toad

21

Only one species used in the analysis — Totally inadequate!

(Continuation of Forest Service response)

20 See response to comment 17 of this letter. Analogy, the use of data from one type of animal to predict the effect on another, is a method "...generally accepted in the scientific community..." Our analogs are based on "...existing credible scientific evidence..." By performing the analyses of effects on wildlife we have, to the best of our ability, fulfilled the requirements set forth for addressing data gaps.

21 The species selected were chosen to represent a wide range of taxonomic groups, food habits, and habitats. See also response to comments in Letter No. 320, Comment No. 14.

22

2,4-D and 2,4-DP present the highest relative risks to wildlife of the herbicides considered, although their absolute risks are moderate. Hexazinone, tebuthiuron, and triclopyr present low to moderate risks to wildlife. Glyphosate presents a low to very low wildlife risk. Fosamine, imazypyr, kerosene, limonene, picloram, and sulfometuron methyl present the lowest wildlife risks.

Page 8-4 all of them? Doubtful!

Local populations of small mammals, small birds, terrestrial amphibians, and reptiles may be adversely affected if large areas are treated; however, the reproductive capacity of these species is generally high enough to replace the few lost individuals within the next breeding cycle. Populations of larger mammals and birds and any domestic animals present are not likely to be affected at all.

Page 8-4

23 a big data gap that should be filled prior to use of herbicides on a large scale.

The risks of the individual herbicides are discussed below. Literature references for the toxicity levels in laboratory species are given in the wildlife hazard analysis. Again, it must be noted that there are very few toxicity studies on which to base these conclusions. Avian toxicity data are particularly rare for most of the herbicides. 2,4-DP, glyphosate, hexazinone, kerosene, and sulfometuron methyl had only two or three laboratory animal LD_{50} tests to use in the analysis. Limonene had only a single rat oral LD_{50} to use. However, the conservatism used in estimating the wildlife doses should compensate for much of the uncertainty in the toxicity data base.

Wildlife Risk From the Individual Herbicides

The risks to wildlife from the use of 2,4-D are moderate. Estimated realistic wildlife doses (table 8-1) range from 7 to 33 mg/kg for birds and from less than 1 mg/kg for larger mammals to 12 to 71 mg/kg for small mammals. These doses are below the EPA 1/5 LD_{50} criterion for avian species. Small mammal doses approach the EPA level. Realistic doses for larger mammals are well below the EPA level as are the doses for amphibians and reptiles. Extreme dose levels for the majority of representative species approach or exceed the EPA risk level. Extreme doses for the bluebird, kestrel, and red-cockaded woodpecker approach the laboratory LD_{50}. Doses for small mammals exceed the laboratory species LD_{50}.

Estimated wildlife dose levels of 2,4-DP (table 8-2) are comparable to those of 2,4-D. Small mammals may be at a moderate level of risk from the use of 2,4-DP. Their realistic dose levels represent a significant portion of the EPA 1/5 LD_{50} risk level. Birds may also be at moderate risk. However, it must be noted that the LD_{50} for avian species is based on the lethal level for 2,4-D in the Japanese quail and chukar because avian data on 2,4-DP are lacking. The extreme estimated doses for birds and small mammals exceed the EPA levels. It does not appear that larger mammals, amphibians, or reptiles are at risk from 2,4-DP use.

Dicamba realistic doses (table 8-3) are well below the EPA 1/5 LD_{50} risk level for all representative species. Small mammal and smaller bird extreme doses approach the 1/5 LD_{50} level. The red bat dose exceeds it. So dicamba presents a lower risk to wildlife than either 2,4-D or 2,4-DP, although a few animals could be seriously affected or killed.

(Continuation of Forest Service response)

22 Most species' (especially small mammals and birds) reproductive capacity far exceeds the ability of the habitat to support them. Low reproductive rates are typical of much larger species not likely to be affected by the herbicides evaluated.

23 Absence of negative data in the literature, especially in a weak data base, is insufficient to demonstrate "safety". However, we have been unable to demonstrate any probability of significant adverse effect on birds through our analyses of analogs.

86

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Like Allan Bloom's recent book, Closing of the American Mind, our Forest Service's Analysis is a comprehensive look at the

1 Why? problems faced by all of us — in all of our national forests.

With the decisions made

Comments on Alternatives: by those concerned, in the plans for our Cherokee Forest and its future, I feel confident that the

Why? decisions to be made for the Piedmont — Coastal Plain will be equally wise —

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Mrs. Thomas C. Swindell (Maxie)
Name: First MI Last
5609 Sunrise Drive
Street
Knoxville TN 37919
City State Zip Code

Response to Comments in Letter No. 86

From: Mrs. Thomas Swindell

Comment No.	Response
1	The interdisciplinary team is pleased the commenter finds the analysis comprehensive.

94

517 Woodland Hills Dr.
Philadelphia, MS. 39350
August 16, 1988

Mr. Steve McCorquodale
Team Leader
Vegetation Management EIS Team
USDA Forest Service
1720 Peachtree Rd. N.W.
Atlanta, Ga. 30367

Dear Mr. McCorquodale:

I have reviewed the Draft EIS on veg-a-tion mgt. for the Coastal Plain and wish to congratulate you and your team on a job well done. You have thoroughly covered the subject and presented it in good form. The scientific analysis is excellent.

Basically I support your preferred alternative G. However, I would like to see aerial application of herbicides kept to a minimum dose to its high visability. Also, if more herbicides are applied by hand and machine it might mean more employment

1

Sincerely,
Joe Spinks
Joe Spinks

Response to Comments in Letter No. 94

From: Joe Spinks

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

95

August 14, 1988

[.S.D.A.Forest Service
1720 Peachtree Rd., N.W.
Atlanta, Ga. 30367

Dear Sirs:
Thank you for sending me the volume on Vegetation Management in the Costal Plain and Piedmont and thank you for the opportunity to express my opinion.

Have you heard the expression "If it ain't broke don't fix it." ? We have just about fixed the world with our chemical meddling. Man will go to great lengths to destroy his environment.

I am very much opposed to the use of herbicides!

The only benefit of herbicides is that they make billions of dollars for the chemical companies who have brain-washed the powers-that-be and a great many ignorant consumers into thinking that their nozzle approach to managing vegetation is safe.

1 The poisons do not go away, as claimed. Have we come to the phylosophy that a certain number of deaths from exposure to herbicides is acceptable?

Please take note of what has just happened to Admiral Zumwalt's son. The Admiral ordered the spraying of Agent Orange in Viet Namn. His son died yesterday in Fayettville, N. C. from cancer as a result of being sprayed with the poison while he was on duty in Viet-Namn. To add to the tragedy, this man's son has genetic damage because of his father's exposure.

2 Please use restrai d do away with the use of herbicide poisons. Where ne ssary use machines to maintain the power lines, etc. it was possible to install the lines and towers with the use of machines it is possible to maintain them with machines - not to mention the employment they provide.

The less management the better.

Sincerely,
Evalyn B Cuningham
Evalyn B. Cuningham (Mrs. M. L.)

2619 Reynolds Dr.
Winston-Salem, N. C. 27104

Response to Comments in Letter No. 95

From: Evalyn Cuningham

Comment No.	Response
1	Based on the information disclosed in this EIS, the rate of environmental degradation of the herbicides evaluated is very rapid. Long term persistance is not expected when these herbicides are used according to the mitigation measures required in Chapter II, pages II-48 to II-54 of the Draft EIS. See response to comments in Letter No. 73, Comment No. 18, for human health conclusions. See response to comments in Letter No. 114, Comment No. 3, on persistence.
2	Not all areas can be treated effectively with mechanical tools. Were herbicides not available, work with hand tools would be necessary to maintain rights-of-way which would significantly increase the number of worker accidents. The extra employment provided in this setting would have a high price in terms of worker safety. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

96

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Yes I believe your Coverage of scientific analysis is thorough.

Why? Because of the way you have each Management group seperated and analyzed

Comments on Alternatives:

Yes I feel the alternatives do respond to my concern.

Why? Because of safety there is a great Concern the way growth and harvest management are performed. Wildlife protection is a Concern. I Prefer alternative G myself over others. I believe there should be variations by District.

Other: Biological treatment by livestock I have a question mark by this.

1

Why? Does this accomplish its purpose or interfer with wildlife, and production of timber. I dont believe this helps.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Clarence F. King Jr.
Name: First MI Last

Rt 1 Box 202
Street

Bristol Fl. 32321
City State Zip Code

Response to Comments in Letter No. 96

From: Clarence F. King

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received. With mitigation numbers 1, 2, and 3 on page II-54 of the Draft EIS in place, biological methods can accomplish vegetation management objectives without adversely impacting wildlife or timber values. See pages IV-44-45 and IV-69 of the Draft EIS for specific effects on those elements.

97

Comments on Scientific Analysis and Alternatives

1 Alternative A is necessary so as to allow some of the forest to mature and provide habitat for many plants and animals that otherwise could not exist. This should include some threatened and endangered species. Certainly a forest can be permitted to mature without catching fire excessively. As it matures it becomes woodier and damper and less weedy, and in many other ways resists fire. How did forests manage to mature before man arrived? Noone should interpret lack of vegetation management to mean that ROW's will not be maintained and roads and transmission lines allowed to deteriorate. Without the highly overrated risk of fire and its consequences, or the irrational failure to maintain Rights of Way, this alternative should, without the expenditure of one penny, help to preserve endangered and threatened species, and attract amateur and professional students of forest creatures. Further, the world-wide destruction of forests makes it important that we counteract it, and here the Forest Service has the opportunity without any expenditure but perhaps the loss of timber revenue.

2 I object to the area-wide application of any poisons, herbicide, pesticide or whatever, especially from aircraft. This becomes too difficult to control, harms many non-target creatures, and furthermore, the brown looks ugly against the beautiful green! The same is true of too frequent use of fire, especially where there are many hardwoods or very few herbs, especially weeds.

Thomas A. Imhof
1036 Pike Road
Birmingham, AL 35218

Response to Comments in Letter No. 97

From: Thomas Imhof

Comment No.	Response
1	The commenter's prefernece for alternative A was included in the content alaysis of all comments received. Alternative A allows all (not just some) of the forest to mature without intervention. Wilderness areas, research natural areas, and other special areas, located on national forests throughout the South (which comprise just some of the forest), are unmanaged areas. On the issue of fire, see response to comments in Letter No. 73, Comment No. 81. Due to lack of vegetation management (especially prescribed fire), some threatened and endangered species on the national forest land base would be at risk in alternative A. The kinds of ROW and roads treatments discussed within the scope of this EIS are wholly vegetation management. The theme of alternative A is that no vegetation management would occur (the no action alternative). One of the effects resulting from doing nothing is deterioration of rights-of-way. Alternative B allows (though minimally) treatment of corridors.
2	It is true that broadcast, including aerial, treatments affect non-target plants and animals and visual quality more than selective treatments. But mitigations 4 through 7 on pages II-48-49 of the Draft EIS require low application rates, preference for target-selective application, screening out herbicides with significant health or environmental risks, and timing of treatment to minimize non-target impacts. Control of aerial treatments is enhanced by mitigations on pages II-51 and II-53 of the Draft EIS which control drift and its effects by requiring use of large-droplet nozzles and buffers and application during favorable weather. In addition, selective treatment composes at least 70% of all herbicide use, except in corridor maintenance, in every alternative but H. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS. This alternative also does not allow repeated prescribed fires on the same site more often than every 3 years except where necessary to manage habitat of the endangered species.

Monsanto

MONSANTO AGRICULTURAL COMPANY
800 N. Lindbergh Boulevard
St. Louis, Missouri 63167
Phone (314) 694-1000

August 5, 1988

Mr. John E. Alcock
Regional Forester
USDA Forest Service
Southern Region
1720 Peachtree Rd. N.W.
Atlanta, Georgia 03067

Dear Mr. Alcock,

Monsanto Agricultural Company is pleased to provide comments on the document entitled "Draft Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont". Monsanto is the sole manufacturer of the herbicide glyphosate, the active ingredient in several product formulations utilized by the U. S. Forest Service and discussed in this document. We have been actively following the development of this environmental impact statement and have provided data and information as requested by both the EIS Project Team and the contractor responsible for completing the risk assessment contained in Volume II of the document.

Our review of this document was undertaken by members of both our toxicology and environmental affairs organizations.

The following comments cover the content of Volume I of the document dealing with the review of all vegetation management alternatives considered by the U.S. Forest Service.

Monsanto Agricultural Company has been actively involved in the development of environmental impact statements dealing with the use of herbicides for control of unwanted vegetation on public lands for many years. We have worked to insure that the information necessary to meet the requirments of the National Environmental Policy Act (NEPA) is available to public agencies. We participated in the revision to regulations addressing worst case analysis requirements through the public comment process in 1985 and 1986. These revisions have greatly assisted agencies in preparing health risk assessments and in dealing with missing but necessary data on herbicides.

The recent decisions by the federal courts in the Pacific Northwest have conclusively demonstrated that an environmental impact statement can be prepared that meets the requirements of NEPA. The Bureau of Land Management has successfully prepared and defended an EIS dealing with the use of herbicides on public lands to control noxious weeds. The adequacy of this document was challenged in court; the challenge was rejected by the federal court as well as the appeal and request for rehearing. Clearly the health issues that exist with herbicides have now been evaluated in regards to federal statutes successfully. Region 8 of the U.S. Forest Service, in our opinion also clearly demonstrated that an EIS that meets the requirments of NEPA can be prepared. After review of this document we strongly believe that all areas requiring evaluation concerning herbicide use on public lands administered by the USFS in Region 8 have been adequately addressed.

In particular we support the preferred alternative identified in the document for the control of unwanted vegetation. The evaluation and supporting health and environmental risk assessments demonstrate that implementation of the preferred alternative can be accomplished without unreasonable impacts on human health or the environment in general. We particularly applaud the inclusion of aerial application methods in the preferred alternative. Many studies have now conclusively shown that this application technique can result in reduced exposure to applicators over conventional ground application techniques. Applicators clearly have the highest potential for exposures and any technique that lowers that potential such as in aerial application should be encouraged.

1 From a herbicide evaluation standpoint, we would suggest that the document address data completeness more specifically. After review, it is clear that considerably more data exist for certain compounds than for others. When the public is asked to accept the use of a chemical, the amount and completeness of publicly available data and information on that chemical is extremely important. We have noticed that in the case of chemicals recently introduced to the marketplace, some test data is still being generated for the first time. In those cases, the document preparers have assumed no effects will result. For the chemicals that have such data, the worst effect is assumed and used in all risk calculations. This is simply unfair and results in an unfair comparison regarding risks between chemicals. We strongly request that if such assumptions continue to be used in the final EIS that assumptions be clearly stated and those chemicals with incomplete or ongoing studies be clearly identified as such. The document simply does not treat the existence of such data (or lack of such data) equally for all chemicals.

The comments pertaining to glyphosate toxicology information are primarily technical in nature and deal with our belief that your document should be as accurate and up to date as possible. These comments are as follows and refer to Volume II of the document.

Response to Comments in Letter No. 109

From: Thomas Hoogheem

Comment No.	Response
1	Missing and unavailable data is so noted in the text. Stronger statement of data completeness is felt to be unnecessary.

* page 3-11, Table 3-2

2 There was no fetotoxic or reproductive effect in the referenced 3- generation reproduction study. Focal, unilateral renal tubular dilation was noted in a few male pups from the F3b generation. The EPA considered this to be a treatment-related systemic (not reproductive) effect. The Food and Agricultural Organization and World Health Organization (FAO/WHO) jointly evaluated this study and concluded: "Necropsy evaluation of all animals from the F0, F1b, and F2b parents and F3b pups indicated no treatment-related effects. The highest dose level of 30 mg/kg b.w./day was the no-observed-effect level in this study". Other regulatory agencies throughout the world have agreed with the conclusion in the FAO/WHO document. We strongly urge this inaccuracy in the current document be corrected. This value impacts on subsequent risk calculations as well as safety factor values listed elsewhere in this document. Based on the current use of the inaccurate number, the risk assessment has overestimated the hazard and thus undercalculated the true margins of safety regarding possible reproductive effects. The FAO/WHO document is attached.

* page 3-19

3 In the chronic mouse study, glyphosate was administered in the diet on a ppm basis; the target levels were 1,000, 5,000, and 30,000 ppm. EPA used extrapolations to obtain values of 750 and 4500 mg/kg/day for the mid and high dose levels, respectively. However, actual measurements of food consumption showed that: the high dose was 4841 and 5874 mg/kg/day for males and females, respectively; the mid dose (NOEL was 814 and 955 mg/kg/day for males and females, respectively.

* page 3-19

4 The document references two acute dermal studies in rabbits with conflicting results. The second reference (no irritation) is correct.

* page 3-19

4a Based upon the acute oral toxicity data on N-nitrosoglyphosate submitted to the Agency (Accession No. 229785), the actual oral LD50 is 7600 mg/kg.This would put NNG in category IV, not III, for oral toxicity. Monsanto has requested that EPA correct this discrepancy.

* page 3-26, Table 3-4

5 The following addition can be made:

Rat - 94% within 5 days. This study is summarized in the FAO/WHO document (pp. 63-64).

2 The Risk Assessment has been clarified to explain the rationale behind the choice of this dosage level to set the reproductive developmental NOEL.

3 Thank you for this information. We have relied on EPA's judgment to obtain the mid- and high-dose levels.

4 The Risk Assessment has been revised to incorporate this information.

4a The categorization of N-nitroso-glyphosate is reported as it appears in the June 30, 1986 EPA document "Guidance for the Reregistration of Pesticide Products Containing Glyphosate."

5 This information has been incorporated in the Risk Assessment.

* page 3-37

6 In the chronic mouse study the dose level (4500 mg/kg/day) is incorrect as noted previously. The EPA Science Advisory Panel concluded that there was "inadequate animal evidence of oncogenicity". A reference for this statement is the Federal Register Notice that appeared September 16, 1987 and which is enclosed.

* page 6-2, Table 6-1 and page 6-8

7 The acute oral study with Bobwhite quail submitted to the Agency (WL-78-27; Accession No. 234395), shows that the LD50 is greater than 4640 mg/kg. Monsanto has asked EPA to correct this error. The correct values are shown in the glyphosate technical Material Safety Data Sheet (MSDS) which is enclosed.

8 * page 6-8, Based on data submitted to the Agency (HL-73-75 and HL-73-76; Accession No. 94171), the 8-day dietary LC50 values for both quail and mallard ducks are greater than 4640 mg/kg, not 4000 mg/kg. Monsanto has asked EPA to correct these errors. The correct value is also given in the attached glyphosate technical MSDS.

* page 6-8

9 In regards to metabolism studies, absorption of glyphosate across the GI membranes is incomplete, not just slow. Only 15% (in males) and 40% (in females) is absorbed in rats. This is discussed in the attached FAO/WHO document.

* Table 6-12, pages 6-26 through 6-28

RODEO AQUATIC HERBICIDE

10 Trout - 680 ppm is the value for RODEO/X-77 surfactant combined. The correct value for Rodeo alone is 1100 ppm (not 1070).

11 Chinook and Coho salmon - It should be noted that the LC50 values are for RODEO/X-77 surfactant combined. The product used in forestry and rights of way (utilities) that is approved for use over aquatic areas is Accord® Herbicide. (MSDS attached)

ROUNDUP HERBICIDE

12 Rainbow Trout, 2 gram fingerlings - The LC50 listed in Table 3 (page 274) of Folmar's article is 8.3 ppm.

13 Bluegill- In Folmar's article, values of 5 and 7.5 are listed in Tables 1 (page 272) and 5 (page 275), respectively. Therefore, the range should be listed as 1.8 -7.5 ppm.

(Continuation of Forest Service response)

6 Again, we relied on EPA's interpretation of the high dose for the mouse study. The statement regarding glyphosate's oncogenicity has been changed to reflect the wording that appeared in the Federal Register, as suggested.

7 We have relied on EPA's presentation and interpretation of the study in this case.

8 We have no reason to question EPA's presentation and interpretation of these studies.

9 The statement has been corrected in response to your comment.

10 The table has been revised in response to your comment.

11 The table has been revised in response to your comment.

12 The table has been revised in response to your comment.

13 The table has been revised in response to your comment.

14 The LC50 of 5.8 was obtained using a flow-through system. Also, the correct source for this study is Monsanto Company, 1985 Material Safety Data Sheet (MSDS) for Roundup Herbicide which is attached.

15 The static 96-hr LC50 of 14ppm should be added to the Table. The source is: Monsanto Company 1985. Material Safety Data Sheet for Roundup Herbicide which is attached.

16 Fathead Minnow- The correct source for the second study is Monsanto Company 1985. Material Safety Data Sheet for Roundup Herbicide which is attached.

17 Carp- The value of 3.9 ppm is not in the referenced document and we have no record that the study was ever done. The only study done by Monsanto with Carp resulted in a 96-hour TL50) value of 19.7ppm (Monsanto Company 1985. Material Safety Data Sheet for Roundup Herbicide which is attached.

18 Water Flea- The following studies should be added to Table 6-12: 48-hr EC50 (with aeration) = 37ppm, 48-hr EC50 (without aeration) = 24ppm. The source is again Monsanto Company 1985. Material Safety Data Sheet for Roundup Herbicide which is attached.

A product now used in forestry in the southeast that has a similar chemical makeup to Roundup is named Accord CR Herbicide. (MSDS attached)

TECHNICAL GLYPHOSATE

19 Rainbow Trout- The following study should be added to Table 6-12: 96-hr LC50) = 86 ppm. The source is Monsanto Company 1985. Material Safety Data Sheet for Glyphosate Technical. Also the 96-hr LC50 value of 38 ppm is listed as TL50 in the referenced document.

20 Bluegill- The 96-hr LC50 value of 24 ppm is listed as TL50 in the referenced document. Two other bluegill studies should be added to Table 6-12: 96 TL50 of 78 ppm (Source is USDA 1981, as cited in USDA,1984), and 96-hr LC$_{\%}$) of 120 ppm (Source is Monsanto Company 1985. Material Safety Data Sheet for Glyphosate Technical).

21 Fathead Minnow- The correct source for the Monsanto Study is: Monsanto Company 1985. Material Safety Data Sheet for Glyphosate Technical.

22 Water Flea - The 780 ppm value (Daphnia sp.) was a 48-hr LC50, not 40-hr. The correct source for the D. magna study is : Monsanto Company 1985. Material Safety Data Sheet for Technical Glyphosate.

(Continuation of Forest Service response)

14&15 The analysis uses the lowest toxicity value of either static or flow-through testing. In most cases, the table does not indicate which test system was used.

16 The reference has been corrected in response to your comment.

17 The 96-hr LC_{50} value for the carp has been changed to 19.7 ppm.

18 The analysis uses the lowest value found in the literature.

19 The table has been changed as you suggest. According to the glossary in the referenced document, TL_{50} and LC_{50} have the same definition.

20 The items you mention have been added to the table. TL_{50} and LC_{50} are synonymous.

21 The reference has been corrected.

22 The table has been corrected in response to your comment.

In conclusion, we wish to complement the Forest Service on the preparation of an overall excellent document. We will provide any additional information that may be requested regarding this EIS and hope for the earliest possible issuance of the final EIS and record of decision that reiterates the use of the preferred vegetation management alternative.

Sincerely yours,

Thomas J. Hoogheem
Environmental Issues Manager

TJH:rk
Enclosure

110

THE DOW CHEMICAL COMPANY

MIDLAND MICHIGAN 48674

August 16, 1988

USDA Forest Service
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

ATTN: Rm. 362S
DRAFT CP/P

COMMENTS ON THE "DRAFT ENVIRONMENTAL IMPACT STATEMENT VEGETATION MANAGEMENT IN THE COASTAL PLAIN/PIEDMONT" VOLUME I and VOLUME II (APPENDICES)

The following comments are being submitted on behalf of The Dow Chemical Company. Some comments are general in nature and others are very specific to the point of noting typographical errors. Generally, the EIS has been written very carefully and it is a good document. It places quite a bit of emphasis on explaining that its approach is to over-estimate risk and to be overly conservative The document states repeatedly that no health effects are likely to occur in applicators using herbicide as part of the program, nor in the general population as a result of occasional contact with sprayed areas. The Forest Service and LaBat-Anderson have included most of the information which we have provided and have re-calculated exposure figures for triclopyr based on the newly determined dermal penetration rate. There are a few 'details' which we would like to see changed but which the Forest Service apparently cannot change at the present

1 time--such as the reproductive NOEL for triclopyr which was from an EPA one-liner. When EPA writes a document with another NOEL, we can ask for a revision, but that may not be possible with this particular document because of timing.

MAJOR POINTS

2 • The NOEL for triclopyr reproductive effect has not changed since we last reviewed this document and is still listed as <10 mg/kg/day based on the EPA one-liner summary of our older rabbit work. (3-11,13) Apparently that won't change without a document (one-liner) from

Response to Comments in Letter No. 110

From: Joanne Betso and John Troth

Comment No.	Response
1	As new information is released, either through EPA or via peer-reviewed publication, it will be considered in our ongoing analysis of environmental/health effects.
2	We have chosen to use the lowest available NOEL from EPA-reviewed studies for the Risk Assessment.

EPA showing another (higher) NOEL. Newer data are available which support a higher reproductive NOEL at 75 mg/kg/day for rabbits (1988 Dow study).

3 • While 'typical scenario' calculations lead to Margins of Safety for most chemicals in excess of a few hundred, comparisons to the Margins of Safety for 'maximum scenarios' which are four to eighty times lower in the case of worker exposures cannot be justified by any common-sense approach to maximum herbicide use. Can a worker apply four to eighty times more herbicide in a day without misapplication? Even though an explanation is given for the derivation of the maximum scenario Margins of Safety, these numbers are extremely conservative and not likely to be approached under forseeable conditions.

3a • THUS, the use of a risk indication of 'HIGH' for MOS's between 1 and 100 is not justified -- especially in the case of the 'maximum scenarios'. We would like to offer the following alternative for use in the risk Tables IV-1 thru 5 of the EIS

<1 high risk
1-10 some possible risk
10-100 low risk or some risk for sensitive individuals
>100 insignificant risk

Then the notations in the IV-1 thru 5 'risk Tables' would conform to the descriptive phrases used in the Appendices on page 1-9 which states that "This 10 times 10, or 100-fold, safety factor means that the laboratory NOEL dose reduced 100-fold would normally be considered a safe dose to the general public".

OTHER SPECIFIC POINTS

4 • A cancer risk for picloram is still calculated and is based on the NCI bioassay rat liver nodules. However, the document points out that the mutagenicity information on picloram shows it to be a non-mutagen. A link is drawn between cancer and mutagenicity--so why not assume that picloram is not a carcinogen and provide information from the latest rat chronic study as significant (and negative). (1-3)

3 In the maximum exposure scenarios, the same application methods are used; however, the highest application rates and the largest treatment unit sizes are incorporated and conditions conducive to off-site drift are assumed. These assumptions allowed calculation of the highest exposures likely to occur except in the case of an accident.

3a We disagree. Exposures resulting in margins of safety less than 10 present a risk to humans, based on the incorporation of a safety factor of 10 which allows for interspecies extrapolation from laboratory animal NOEL's. Margins of safety less than 100 are also assumed to present a risk, based on incorporation of an additional safety factor of 10 to allow for intraspecies variation in susceptibility. Extremely sensitive individuals may even experience adverse effects following exposures that result in margins of safety greater than 100.

4 Currently, EPA classifies picloram in Category D, meaning that it is not classifiable as to human carcinogenicity because of inadequate data. In light of the uncertainty associated with the previous studies, the Risk Assessment for picloram incorporates the conservative assumptions that picloram is a carcinogen.

5 • The document still notes that mutagenic potential can be judged from the results of carcinogenicity studies. That is not normal reasoning and was not followed as a theme in the risk calculations where no risk figures were calculated for mutagenic risk and picloram was judged not to be a mutagen even though a cancer risk figure was calculated for it. (1-5, 3-29)

6 • The document still operates under the assumption that mutagenicity and carcinogenicity are nonthreshold phenomenon and calculate risk in that manner. We do not believe that approach is supported by the scientific evidence. (3.3)

7 • Table 3-3 needs to be made more specific as to whether it addresses unformulated active ingredient or formulations. It seems that data for both have been mixed in the table in a confusing way. Separate data for formulations (without irritancy) are give in Table 3-9.

• The new dermal penetration rate for triclopyr has been incorporated. Exposure numbers (4-83,84) are lower. (DPR discussed 4-24) We are grateful for that re-calculation using the new data.

8 • In the brown and burn section, the assumption is still made that all of the herbicide residue is released during a fire. This is not a reasonable assumption based on the data we've seen and based on common sense. Work by McMahon, 1985 and Bush, 1987 are discussed but the above assumption is still made. We believe the results of these scientific studies should be utilized. (4-61 and 5-31)

9 • The systemic toxicity NOEL for triclopyr is 2.5 mg/kg/day based on the 6-month dog study. That dog study and the recent chronic rat study both showed that the kidney is the target organ at doses >NOEL and that the liver shows effects only at higher doses. However, the document singled out the liver as the possible target organ for excessive triclopyr exposure. This should be changed to kidney if the discussions are to be consistent with the data. (5-5 and 5-29)

5 At present, there is no universally accepted method for quantifying mutagenic risk to humans. In cases where there were insufficient data to determine mutagenic potential, carcinogenicity was used as an indicator because of the correlation between mutagenicity and carcinogenicity. In the case of picloram, sufficient evidence is available to assume it is non-mutagenic.

6 There is no general agreement among scientists on this point. We have conservatively assumed that there is no threshold for these effects.

7 The table includes this information where possible. In some cases, however, the references used did not contain this information.

8 We believe this conservative assumption to be reasonable for this analysis.

9 The wording has been changed as you suggest.

Also, (5-5) 3rd paragraph–should read "...kidney effects from triclopyr maximum exposures."

10 • We appreciate LaBat's efforts in removing the skin sensitization discussion for mixtures of 2,4-D and picloram as being indicative of a synergistic effect, since synergism does not occur, but now it is stated that the mixture is irritating and the individual ingredients are not. The data do not support this. (5-46)

11 • (1-4) Risk Analysis "though" maximum scenarios... in chart

12 • (1-8) 4th paragraph–change sentence to "A margin of safety of 100 is somewhat comparable to the 100-fold safety factor that has been used in some cases to set a safe dose for humans from valid long-term laboratory animal studies–though this risk estimate uses worst-case analyses and over-estimates risk."

13 • (3-3) 3rd to last line "Dermal and inhalation...."

14 • (3-34 and 35) The Scientific Advisory Panel has met and their conclusion is that 2,4-D should be placed in Category D (not classifiable as to human carcinogenicity) judging from both the animal and epidemiology data. (Federal Register, March 23, 1988)

15 • 5-2) 3rd paragraph–delete the last line "A MOS of 3, for example, represents a risk of toxic effects for repeated exposures."

16 • (5-10) Table 5-5 (cont.) Triclopyr —urinary retention of triclopyr.

17 • In the DRAFT EIS, VOLUME I....
(IV-5) Organ effects ..."Generally the liver, kidney and all major organs are closely monitored." (No need to single out ovaries and pancreas as they are not normal 'target organs' even though they are two of the 30-40 organs/tissues normally examined.)

(Continuation of Forest Service response)

10 The discussion has been revised in response to your comment.

11 The sentence has been revised to clarify its meaning.

12 The concept of MOS as used in this Risk Assessment is that generally accepted by the scientific community. See also response to comment 3a of this letter.

13 This sentence has been revised.

14 This sentence has been updated.

15 The last line is correct.

16 The wording has been changed as you suggest.

17 Text has been changed to include this clarification.

USDA Forest Service
Page Five
August 16, 1988

ADDITIONAL DATA

18 • (6-15) 5th paragraph - More current honeybee data
contact LD50 triclopyr acid >100 microgram/bee
" BEE >100 microgram/bee
(see attachment)

19 • 6-39) Table 6-17
D. magna 48 hour LC50 Test 1: 2.8 mg/L
Test 2: 1.7 mg/L
mean 2.2 mg/L
(see attachment)

Joanne Betso
H&ES Information Center

John Troth
Agricultural Products Department

klr

Enclosure: Letter report

(Continuation of Forest Service response)

18 The new information on bee toxicity has been added to the text.

19 The new information on Daphnia toxicity has been added to table 6-19.

Milazzo, D.P. and T.L. Batchelder. 1981. Evaluation of Garlon*4 formulation in The Aquatic Environment. Environmental Sciences Research Laboratory. Dow Chemical U.S.A. ES-426.

This report covers both aquatic toxicity and basic environmental properties of Garlon* 4 herbicide. Toxicity tests were conducted with the fathead minnow, Pimephales promelas, and Daphnia magna. Environmental assessments included the potential for movement from water to air and the biochemical oxygen demand (BOD). Fathead minnows were tested at 12°C and exposed to nominal concentrations (10, 7.5, 5.6, 4.2, 3.2, 2.4, 1.8, 1.35, and 1 mg/L) of Garlon* 4 formulation. Replicate tests with Daphnia magna were conducted at 20°C. Each test was conducted with nominal concentrations (70, 42, 25.2, 15.1, 9.1, 5.4, 3.3, 2.0, 1.2, and 0.71 mg/L) of Garlon* 4 herbicide. The aeration test was conducted by bubbling filtered air for 4 hours at 400 ml/minute through an aqueous solution of Garlon*4 herbicide with total carbon analysis of water to estimate loss of air. The biochemical oxygen demand was assessed using an industrial and municipal seed. Prior to use, the seeds were filtered through a Whatman 114 filter and used at a ratio of 55 ml/L. Results: The 96-h LC50 for the fathead minnow was reported to be 2.1 mg/L with 95% CI of 2.0 to 2.7 mg/L. At 96 hours there was 100% mortality at 4.2 mg/L and higher; there was 90% mortality at 3.2 mg/L, 50% at 2.4 mg/L and 20% at 1.8 mg/L. The results of test 1 with D. magna indicated a 48-h LC50 of 2.8 mg/L and for test 2, 1.7 mg/L; the geometric mean of these values in 2.2 mg/L. Mortality occurred at all concentrations tested with 100% mortatlity occurring at concentrations exceeding 9.1 mg/L. The formulation showed 18% loss from water to air as indicated by total carbon analysis. These results suggest a moderate loss from water; however, the loss may reflect to loss of constituents of the formulation other than triclopyr butoxyethyl ester. The formulation had a five day BOD of 25 and 42% for industrial and municipal seed, respectively. Similarly, the 10 day BOD was 38 and 52%. These data indicate a substantial biodegradability of Garlon* 4 formulation.

Submitted to USDA Forest Service 8/88

Dingledine, J. and M. Jaber. 1985. Triclopyr: An Acute Contact Toxicity Study with Honey Bees. Contractor: Wildlife International Ltd. Health and Environmental Sciences, Dow Chemical U.S.A. December 18. Submitted January 1986.

This report describes the contact toxicity of triclopyr acid to the honey bee, Apis mellifera. Bees were from the bee colonies of Wildlife International Ltd. of St. Michaels, Maryland where the test was conducted. The test material (triclopyr acid) was assayed as 99.2% pure. Exposure concentrations were prepared in pesticide grade acetone. All bees were 1 to 7 days old at initiation of the study. Mean body weight of the bees was determined at the initiation of the study by weighing a group of 25 bees. Bees were obtained by collecting frames containing only pupae and incubated in a March Roll-X automatic incubator; on the day of study initiation, all bees that had emerged were immobilized with CO_2 and twenty five bees placed in each test chamber. Test chambers were disposable one pint rolled paper containers. Each was covered with a disposable 100 mm plastic petri dish through which a 10 ml glass vial containing 50% sugar/water solution was inserted. The opening of the vial was covered with cheese cloth to prevent leakage. This food was available throughout the study. The bees were maintained in the dark except during dosing and daily observations. Test temperature ranged from 24.4 to 27.8°C. There were five treatment concentrations, 13, 22, 36, 60, and 100 µg triclopyr/bee, a solvent and negative control were also included. There were two replicates per concentration except at the 100 µg/bee level at which there were four replicates; an additional group was set because of physical injury to several of the bees in the first set. Test chambers were selected by random draw for dosing. Bees in each replicate were immobilized with CO_2 and laid out on paper and each bee was dosed on the abdomen with 2 µL of the appropriate test solution using and Eppendorf digital pipette. Negative controls were treated identically to the test bees except for dosing. Immediately following dosing the bees were observed for mortality and signs of toxicity. Observations were made twice on the day of initiation and once on days one and two after dosing. The LD50 value was determined by inspection. Results: Controls: Total morality in both the solvent and negative controls was 6%. Test Groups: Bee mortality did not exceed 10% in any test group and did not appear to be treatment related. The honey bee 48-h LD50 value for triclopyr acid is greater than 100 µg/bee, the highest concentration tested. The no-observed effect concentration was 100 µg/bee.

Dingledine, J. and M. Jaber. 1985. Triclopyr BE Ester: An Acute Contact Toxicity Study with Honey Bees. Contractor: Wildlife International Ltd. Health and Environmental Sciences, Dow Chemical U.S.A. December 18. Submitted January 1986.

This report describes the contact toxicity of triclopyr butoxyethyl ester (triclopyr BEE) to the honey bee, Apis mellifera. Bees were from the bee colonies of Wildlife International Ltd. of St. Michaels, Maryland where the test was conducted. The test material (triclopyr BEE) was assayed as 97.7% pure. Exposure concentrations were prepared in pesticide grade acetone. All bees were 1 to 7 days old at initiation of the study. Mean body weights of the bees was determined at the initiation of the study by weighing a group of 25 bees. Bees were obtained by collecting frames containing only pupae and incubated in a Marsh Roll X automatic incubator; on the day of study initiation, all bees that had emerged were immobilized with CO_2 and twenty five bees placed in each test chamber. Test chambers were disposable one pint rolled paper containers. Each was covered with a disposable 100 mm plastic petri dish through which a 10 ml glass vial containing 50% sugar/water solution was inserted; the opening of the vial was covered with cheese cloth to prevent leakage. This food was available throughout the study. The bees were maintained in the dark except during dosing and daily observations. Test temperature ranged from 24.4 to 27.8°C. There were five treatment concentrations, 13, 22, 36, 60, and 100 µg triclopyr BEE/bee; a solvent and negative control were also included. There were two replicates per concentration. Test chambers were selected by random draw for dosing. Bees in each replicate were immobilized with CO_2 and laid out on paper and each bee was dosed on the abdomen with 2 µL of the appropiate test solution using an Eppendorf digital pipette. Negative controls were treated identically to the test bees except for dosing. Immediately following dosing the bees were observed for mortality and signs of toxicity. Observations were made twice on the day of initiation and once on days one and two after dosing. The LD50 value was determined by inspection. Results: Controls: Total mortality in both the solvent and negative controls was 6%. Test groups: Mortality at 13, 22, 36, and 60, µg/bee dosages did not exceed 6% and did not appear to be treatment related. Mortality at the 100 µg/bee dosage was 26% by 48 hours and appeared to be treatment related. The honey bee 48 h contact LD50 for triclopyr BEE is greater than 100 µg/bee, the highest dosage tested. The no observed effect concentration was 60 µg/bee.

Submitted to USDA Forest Service 8/88

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: There is no doubt that your scientific analysis is Above reproach. I am thrilled with the depth of study and the wealth of information in the appendicies. Taking the conservative stance on herbicides 24DP, glyphosate Picloram + 24D is sound. My hope is that this detailed info is relayed to Why? the field workers. At present one would have to dig deeply to find this info and b) really care a lot about the issue to try and absorb all of the facts. A greater reliance on chemicals means greater employee exposure - THEY must be sure of the safety if chemicals are to be applied properly and efficiently.

Comments on Alternatives: Alternative D mentions little about the site degradation
1 with use of mechanical treatments as an argument to bolster support for herbicides with alternative B; they'll be a near doubling of herbicide use you've proved that it's relatively safe - now promote it benefits!!!

Why?

Other: There is no question, from a forestry standpoint, that greater use of fire and herbicides are the prudent road to follow. Greater acreage can be treated at lower costs. The lack of adequate manpower and heavy equipment in certain areas
Why? precludes the extensive use. However be very mindful of the need to utilize both treatments A and B in environmentally sensitive areas (not just from a natural standpoint but also from a political-social aspect). The increasing urbanization of the Southeast and its concomitant demand for recreation, aesthetics and wilderness will limit practices (use additional sheets as necessary) in the

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

MACK A MEGALOS
Name: First MI Last
POBox 467
Street
TROY NC 27371
City State Zip Code

Response to Comments in Letter No. 113

From: Mack Megalds

Comment No.	Response
1	Comments noted. Section IV-F does show that only raking and severe slash burns pose serious risk to soil productivity. Section II-B shows that alternative D bans use of these tools. The benefits of favoring herbicides over heavy mechanical tools are clearly stated in the Record of Decision accompanying the Final EIS.

(2)

a more dramatic fashion than slope, aspect endangered species and the like

I feel that this EIS package is but the first step of your mission. You have a large selling task on your hands - not just to your constituents but to the workers who will undertake these plans. Crucial backing of plans of work and prescriptions from the Administration is necessary so that S.I.V. cultural etc, TMA and their crews KNOW and FEEL that they have the backing to make these decisions.

Furthermore the esprit de corps that made the Forest Service a cohesive group must be built up AGAIN. In recent times the USFS has been targeted by industry + environmentalists as the scapegoat

for many perceived ills. By all means get public input but belief in their (your) goals and commitment must remain strong of the U.S.F.S. has any hope of carrying out these alternatives to their final end.

Final Commentary:

I applaud your effort to utilize herbicides to a greater extent than previously used. In the Northeast where I worked with the USFS there appeared to be little or no support for this approach. You must lay all the cards on the table - talk about the effects, efficacy of chemicals, and their risks. Stick closely to only those chemicals that show little or no known risk and keep the people informed!!! (Locally especially.) As a governmental agency you are suspect from the start Keep this in mind but move forward - Confidently with the facts. Give it a try - the uninformed public is your greatest challenge

114

Rt 2 Box 182A
Alto, Ga 30510
August 18, 1988

USDA Forest Service
1720 Peachtree Rd. NW
Atlanta, Ga 30367

Draft CP/P

Dear Friends:

Thank you for the opportunity to comment on proposed vegetation management alternatives.

My main concern is with the use of herbicides. Although the draft statement states that oncogenicity data for the listed
1 herbicides are unavailable, there is good reason to link their use with later development of cancer. For example, 2,4-D was one of two main components of Agent Orange which is now being linked with certain kinds of cancer. Dicamba's use on farms in
2 the Midwest is now considered hazardous, as it pollutes drinking
3 water in private wells. Glyphosate is also now considered toxic to people, according to many experts. Soil micro-organisms do not break down these compounds; they have been found to accumulate in aquifers long after use.

4 Short-term exposure studies are not enough. Since there is "scientific disagreement" (page IV-9) it would be well not to expose either workers or animals to materials which could endanger their health.

5 Depending on dilution by streams does not remove the danger. What about the effects on the immediate environment and the
6 flora and fauna downstream? Aerial application is always subject to wind shifts, errors of location, and human error.

7 I agree that an increase in timber harvesting conflicts with aesthetics. It also conflicts with protection of the watershed. In my own area I see clearcutting on slopes and subsequent erosion and silting of streams. Why wasn't reduction of timber harvesting or alternatives to clearcutting part of this draft statement?

Our goal should be to preserve the forest , its plants and animals, and its water supply, which affects all of us. Therefore I prefer the least possible interference, using only manual methods to maintain fire lanes, mechanical treatment limited to mowing, and low intensity dormant season prescribed fire, with no use of herbicide.

Very sincerely,

Adele Kushner

Adele Kushner

Response to Comments in Letter No. 114

From: Adele Kushner

Comment No.	Response
1	The EPA has recently taken the position that 2,4-D does not need special review since "... existing laboratory data provide insufficient evidence of carcinogenicity." In addition they found that the Kansas study, on which many negative conclusions about 2,4-D are based, was found to provide "...the basis for additional research..." but "...does not provide a conclusive argument for associating farmer exposure to 2,4-D and non-Hodgkins lymphoma..." (the particular cancer reported as being caused by 2,4-D.) "The Agency [EPA] agrees with the external reviewers and SAP [the president's Science Advisory Panel] that the epidemiological evidence as provided in the NCI/Kansas study does not raise as great a concern regarding 2,4-D as was originally thought." [All quotes from the Federal Register 53: 9590-9594; Mar. 23, 1988.]
2	See the response to comments in Letter No. 70, Comment No. 3. There is extremely low probability that dicamba from forestry operations would reach wells or aquifers. The pesticide background statements used as reference material and appendix A (the Risk Assessment) indicate that even if a well suffered low level contamination (highly improbable), it would result in minimal risk to people or wildlife.
3	During our extensive literature search we found no scientific research which shows glyphosate producing toxic effects in humans when used within the guidelines required in this EIS. All 11 herbicides are broken down by soil microbes at some rate. Most have a half-life of 30 days or less, so less than 0.02 percent would remain at 1 year. Triclopyr (46-day half-life) would have 0.4 percent left at 1 year. Glyphosate and picloram (61-63 day half-life) would have 1.6-1.8 percent left at 1 year. Tebuthiuron (392-day half-life) will be used only with additional mitigation requirements. See pages II-33 and II-49 of the Draft EIS, and appendix C, page 4.

4 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." 40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier regulations. Thus, we have attempted to address both sets of regulations in our analysis.

Analogy is a standard scientific method used to predict effects where there are incomplete or unavailable data. Modeling of effects from known information was done in all cases where scientific data were unavailable. Risks identified in this process are disclosed and considered in our analysis.

5 See response to comments in Letter No. 70, Comment No. 3, and section IV-G.1 as revised in the Final EIS.

6 The mitigation of aerial methods, requiring that only helicopter application be made, requiring the use of nozzles which produce only large droplets, and restricting activity to specified weather conditions, leads to very low-risk field operations. Modeling (displayed in both the draft and final EIS's) shows extremely high margins-of safety for all persons (except the mixer/loader) involved either directly or indirectly in an aerial spray project when the required mitigation measures are followed. For herbicide mitigation measures, see pages II-48 to II-54 of the Draft EIS.

7 See response to comments in Letter No. 79, Comment No. 1.; and Letter No. 115, Comment No. 2.

115

Gerald W Pinckard Jr.
915Barron Rd #39
Keithville LA 71047

USDA Forest Service
1720 Peachtree Rd., NW
Alanta GA 30367

Dear Sirs;
Thankyou for your correspondance.

1 My opinion as to the best alternative, as decribed in chapter II would be Alternative A. With one provisional change. That would be the use of controlled fire to controll fuel build up.

My second choice would be Alternative B . Also with a few changes. Namely to eleminate herbicides and to allow some road ways to be reclamed.

Fires are indeed a natural tool. When plowing is kept to a minimum and then the ditches filled in afterwards. In my opinion, this, is the only acceptable method of controll, other than roadside mowing.

Herbicides are absolutly TABOO! Without the use of herbicides there would be no need for human or enviormental concerns, controversial studys, mistakes, spills, thus no accidents.

2 Reforestation, clear cutting, plowing, planting,chopping shearing, ripping, scarifying, windrow burning, etc. would all be eliminated if the "competing vegetation" was not competing with the government subsidized lumber industry.

Controlling game animal populations should only be nessary to prevent over murdering "hunting" e.g. setting limits and accurate counts.

Producing more animals for harvesting should be left to the private industry and stockyards of this country.

3 Roadways should be kept to a very minimum and the non-esential roads to fire fighting should be eliminated. Roads essential to such efforts need not be forty feet wide all-weather roads.

Hunters and Hikers could do without these massive scars left by the logging industry. Surely many people would benefit from a more beautiful woodland.

4 Biological means of plant control do much more damage than is readily seen e.g. trails causing erosion, soil compaction, and competition for food with wildlife.

Economical concerns are all ways over rated. The Damned Almighty Dollar will indeed win out. Unless we see the very real need to stop using and controlling nature.

Response to Comments in Letter No. 115

From: Gerald Pinckard

Comment No.	Response
1	The commenter's prference for alternatives A and B was included in the content analysis of all comments received. Alternatives A and B do have some favorable effects, but they also have effects considered unfavorable by other commenters. Even prescribed fire (often considered to be more favorable than other methods) when improperly applied or when applied at a high intensity can produce unfavorable effects (see appendix B and chapter IV, part F of the Draft EIS and Final EIS). Alternative A exhibits effects which occur when no vegetation management is done and alternative D exhibits effects which occur when herbicide methods are not used. In each of these alternatives favorable effects exist, but so do unfavorable effects, and both must be recognized and evaluated (see chapter IV and chapter II, parts G and H of the Draft and Final EIS's). Also, all tools impact the environment and when used improperly can cause serious "mistakes" and/or accidents.
2	National forests are mandated to produce a variety of goods and services. In order to fulfill this mandate, some manipulation of natural processes is necessary. One of the principal assumptions shaping this analysis is that Forest Land and Resource Management Plans establish levels of outputs of goods and services, and this EIS displays several ways to manage vegetation to support those levels in alternatives D through H. Though management for these specific goods and services sounds familiar, it should not be viewed as Forest Service desires or standard practices. Land and resource management planning is an exhaustive process with very intense public participation. Output goals and objectives are based on this partnership with the public. See also response to comments in Letter No. 79, Comment No. 1.
3	Road construction is not a vegetation management activity and is thus not within the scope of this EIS.
4	Biological control requires heavy grazing to release pines, so soil compaction and erosion may be substantial. The preferred alternative identified in the Record of Decision (with the Final EIS) does not allow biological control.

Many will indeed loose their jobs if such an aproach is taken. Yet many more, in the long run, would eventualy loose if we don't take drastic steps NOW.

Could this Federal tax money be spent more effective if more realistic goals were realized?

Please let us leave something the way we found it, for our decendants sake!

My compliments to those who prepared this draft. It is encompasing, easy to fallow, and to the point.

THANK YOU
Please continue to do your best.

Gerald W Pinckard Jr.

P.S. Please keep me informed as to the outcome.

South Carolina
Wildlife & Marine
Resources Department

James A. Timmerman, Jr. Ph.D.
Executive Director
W. Brock Conrad, Jr.
Director of
Wildlife and Freshwater Fisheries

August 10, 1988

John E. Alcock
USDA Forest Service
Southern Region
1720 Peachtree Rd. NW
Atlanta, Georgia 30367

Dear Jack:

Department staff have reviewed the Draft Environmental Impact Statement - Vegetation Management in the Coastal Plain/Piedmont. We appreciate the opportunity to review the document and offer the following comments for your consideration.

The DEIS presents eight alternatives, one of which is the preferred alternative (G). Most of the alternatives would not meet current timber or wildlife objectives as outlined in the Francis Marion and Sumter Land and Resource Managment Plans. For example, alternative A is the "no action" alternative. Under alternative B, vegetation management is done only to protect forest and grassland resources. With alternatives C and D, prescribed burning cycles of 7 and 6 years respectively would not meet current burning objectives. There is only one alternative (H) which is more intense in terms of timber management than the preferred alternative (G). Alternative H is the maximum vegetation control alternative with application of herbicides at maximum rates, intensive mechanical methods, and an increase in annual acreage treated from 553,000 acres to 801,000 acres. The only two alternatives which merit consideration are alternatives F and G. Alternative F represents current activities. Alternative G is the Forest Service's "preferred" alternative.

It is difficult to determine what the actual effect of implementing alternative G would be since the DEIS covers a large geographical area including forests in Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Texas. Acreage figures are not presented for each individual state or forest. According to the DEIS (p.II-2) "average acres treated per year by method are estimated. These acres are only projections used to evaluate environmental effects quantitatively. During implementation the actual program may

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1 vary from these projections." The degree to which methods are applied within each forest will determine how significantly wildlife habitat is affected. The distribution of treated acres is just as important if not more important than the total acres treated. In order to access the effects on National Forests in South Carolina, we will need specific acreages for the vegetation management methods applied for each forest for all alternatives. Since the information specific to South Carolina is not presented in the DEIS, comments are made with the assumption that changes in South Carolina would be proportional to the changes presented for the Region.

The preferred alternative (G) increases use of prescribed fire and herbicides for vegetation management, decreases use and intensity of mechanical methods, introduces limited use of aerially applied herbicides, and increases biological methods - grazing (p.xi). Alternative F "Continues present levels of treatment specified in Forest Land and Resources Management Plans. Use of manual methods is minor, and biological methods are not used. Herbicides are applied by hand and machine. Mechanical methods cause low to high soil disturbance. Prescribed fire is of low to high intensity" (p.x). Both alternatives F and G would treat 553,000 acres/year.

It is clear that the primary goal of the DEIS is to allow increased use of herbicide by the Forest Service and to initiate aerial application of herbicides. The majority of the document addresses herbicide use and attempts to justify an increase in this vegetation management method. On page V, paragraph 2, it is stated " the makeup of methods, tools, and mitigation measures in the selected alternative may require some changes in Plan direction," and also stated on p. II-73 "If the Record of Decision includes aerial application, the Regional Forester will request the suspension be lifted prior to using aerial methods".

The major differences in alternatives F and G are in the acreage treated with herbicide and the amount of mechanical treatments. Alternative G proposes a 57 percent increase in herbicide treated acres annually from 27,000 acres/year to 42,500 acres/year. In addition, alternative G proposes 7000 acres/year to be treated with aerial application of herbicides. The combined aerial and ground application of herbicides under alternative G represents an 83 percent increase in herbicide use per year compared to current applications (alter. F). Alternative G also represents an 84 percent decrease in mechanical methods, a 1 percent increase in prescribed fire, an 11 percent increase in manual methods and an additional 500 acres per year grazed by livestock.

Throughout the document statements are made which suggest that current practices on Forest Service lands are more intensive and

Response to Comments in Letter No. 124

From: John E. Frampton

Comment No.	Response
1	You are correct that how South Carolina's national forests apply vegetation management methods will determine how significantly wildlife habitat is affected. The assumption that changes in South Carolina would be proportional to the changes presented for the Region is incorrect. As stated on page II-2 of the Draft EIS, the average acres treated per year by each method are estimated. These acres are projections used to evaluate environmental effects quantitatively. They are displayed for the Coastal Plain/Piedmont forests and grasslands as a whole, not for individual forests or grasslands. 'During implementation, the actual program may vary from these projections. Depending on which alternative is selected, the Plans may need to be amended, especially in the methods and tools allowed and the mitigation measures applied. Additionally, new sections I-C and I-D have been added to the Final EIS that outline the implementation of vegetation management projects. Site-specific vegetation management projects are done within constraints set by the Plans and this EIS. Together, these two documents define the limits within which such projects may operate. When projects are proposed, managers will use the set of guidelines from the selected alternative, along with the directional requirements (standards and guides) within each Forest Plan, to decide the most suitable vegetation control methods under specific site conditions. Decisions about suitability of methods for a particular forest site will be based on a separate environmental analysis of proposed activities. Site-specific analysis (described in mitigation measure number 1 on page II-35 of the Draft EIS) will determine appropriate techniques and intensity of their application for each project and will examine and evaluate a reasonable range of alternative methods, including the use of methods which do not involve herbicides. See also response to comments in Letter No 265, Comment No. 1. The goal of the EIS is only to analyze and disclose effects, not to justify a course of action. The preferred alternative was identified based on the results of analysis. See response 29 of this letter.

more detrimental to wildlife than selected alternative G. These statements indicate that either current vegetation management is too intensive or will become increasingly intensive if the selected alternative G is not initiated. The statements, I believe, are made to make the selected alternative look more attractive. Under "Environmental Consequences"(p.xii) the following statement is made: "... alternative F (current) uses high disturbance tools such as severe slash burns, raking, and heavy disking." I am not aware of raking or heavy disking being used on the Sumter at this time. In the Sumter National Forest Plan (p.IV-25), the use of disking is not mentioned. Even under the most intensive management prescriptions, T/ARTC High and T/ARTI High, it is stated that "site preparation practices on the piedmont will include double chopping and burning." The medium level prescriptions listed hand tools, chopping and burning as the site preparation methods. Table II-3 (p.56 and 57) presents a comparison of alternatives with the issues. A comparison of the statements made for alternative F (current) and the selected alternative G clearly shows an attempt to present favorably the preferred alternative G.

2

The following statements are direct quotes from Table II-3:

Under Balance of Resources
Alter. F - "Favors market outputs"
Alter. G - "Maintain market and non-market outputs at current levels"

3 If alternative F represents current practices how can it favor market outputs and alternative G maintain outputs at current levels including non-market outputs. If alternative G maintains outputs then non-market outputs must also exist under the current alternative and likewise if alternative G maintains market outputs at "current" levels then it must also "favor market outputs".

Under "Prescribed Fire - Timing is not restricted for either alternative yet it is stated with Alter. F that "high intensity is allowed".

Under Health and Safety
Alter. F - "risks not minimized, high for manual"
Alter. G - "risks per individual decreases"

4 How can the risk per individual decrease under the preferred alternative G when there is an increase in the use of manual methods?

(Continuation of Forest Service response)

2 The figures contained in the EIS are correct. They are the totals for actual projects for work done during fiscal years 1986 and 1987. Alternative F has an estimated 2,600 ac/yr of raking and 500 ac/yr of heavy disking, but no raking and only 25 ac/yr of heavy disking on Piedmont forests (Oconee, Sumter, Uwharrie). None would occur on the Sumter. The programmatic EIS covers the entire Coastal Plain and Piedmont. Table II-3 of the Draft EIS only compares relevant facts about each alternative.

3 Alternatives F and G favor market outputs and each allows non-market outputs to be produced ■■ is implied, but perhaps not clear in table II-3. The summary description of effects of alternative G on page II-72 of the Draft EIS describes minor output capability differences more clearly between G and F.

4 Several of the mitigation measures proposed in Chapter II of the draft and final EIS's apply only to Alternatives B, C, E, G, and modified Alternative G in the final EIS. Increased mitigation in the form of personal protective equipment, buffering of sensitive areas, and use of reduced rates of herbicide per acre make the operation itself safer than operations performed under the constraints in Alternative F. Besides, the increase in use of manual methods in alternative G is only a projected 447 acres per year.

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John Alcock
August 10, 1988

Under Plant and Animal Diversity -
Alter. F - "non-selective methods widely available"
Alter. G - "herbicides increased, mechanical substantially reduced"

5 With Alternative G even more "non-selective methods" would be available and utilized over a much greater acreage.

Under Cost Comparison
Alter. F - "Costs are highest, employment moderate"
Alter. G - "Cost lower than F, employment unchanged"

6 Why state "employment moderate" with the current alternative and "unchanged" with alternative G? Would not employment also be "unchanged" with alternative F?

Under Herbicides -
Alter. F - "Broadcast and selective used"
Alter. G - "Use of broadcast leads to less target selectivity"

7 This appears to contradict the statements under plant and animal diversity where alternative F is supposed to include widely available non-selective methods.

Under Wildlife
Alter. F - "high intensity methods degrade some habitat"
Alter. G - "greater flexibility to protect or improve habitat"

8 How can greater flexibility be achieved with broadcast herbicides particularly by aerial application? Aerial application of herbicides would degrade habitat conditions for wildlife. If aerial applications were not used then the same vegetation management methods would be available under alternative G as in alternative F, therefore the flexibility would be the same not greater. Aerial application methods would provide greater flexibility to degrade habitat.

The potential detrimental affects of increased herbicide use can be divided into basically two categories; immediate effects resulting from direct contact and long term effects as a result of reduced or eliminated vegetation utilized by wildlife. An attempt is made to evaluate the direct effects from herbicide contact. The following statements under "Effects of Herbicides" (pp. IV-49 through IV-51) summarizes the current knowledge concerning direct effects of herbicide contact on wildlife:

(Continuation of Forest Service response)

5 While alternative G does increase the use of herbicide, selective treatments are favored over broadcast treatments. See paragraph 2, last sentence, on page II-8 of the Draft EIS. Also, mitigation measure number 5 on page II-48 of the Draft EIS specifically states that preference is given to those applications that affect the minimum amount of vegetation (target selective) and cause minimum site disturbance while still meeting project objectives and posing least risk to people, wildlife, and other environmental elements. Additionally, under mechanical tools, raking and heavy disking are not allowed in alternative G. The Final EIS also contains tables in chapter II, part B, which more clearly define the amounts of selective and non-selective herbicide treatments for each alternative.

6 Alternative F employment levels are not quantified in table II-3. There is a gross quantification by State in table III-11. In order to provide the reader with a measure of comparison, alternative F is described as providing "moderate" employment levels. All other alternatives in the table are compared with current conditions which is alternative F.

7 No contradiction exists. Under the plant and animal diversity column, for alternative F, the statement that non-selective methods are widely available, applies to all vegetation management methods analyzed; whereas, the comment under herbicides refers only to herbicide application methods.

8 The statement regarding greater flexibility to protect or improve habitat for alternative G results from the removal of the high intensity disturbance tools of raking and heavy disking; coupled with the mitigation measures added for all methods that are not currently used in alternative F. Technically, aerial application can be used to improve, not degrade habitat for wildlife. For example, aerial application might be used to control kudzu encroachment along power or gas lines thereby reclaiming areas that could be set up as future linear wildlife openings.

- "Toxicological data is unavailable for most species occurring in the Coastal Plain/Piedmont".

- "When assessing herbicide effects on wildlife, we face an overwhelming number of species with data gaps and inconsistencies in data".

- "Data on animal exposure to herbicide are unavailable".

- "Data on cumulative/effects of herbicides on wildlife are unavailable".

According to the DEIS, "modeling is done to overcome missing or unavailable data". Table IV-9 (p.IV-57) presents the results of modeling to determine the risk of exposure from accidental terrestrial spill of 5 gallons of herbicide with all the chemical reaching a pond. A severe risk was indicated for 7 of 17 chemicals
9 on 16 aquatic species. Although modeling suggested only minimal risk of most chemicals to terrestrial avian and mammalian species, adequate specific data are still not available.

10 Statements concerning the long term affects of herbicide applications on habitat quality are contradictory throughout the document. Generally, favorable comments are made when discussing herbicide use under alternative G and unfavorable under alternative F. The section entitled "Method-Specific Management Requirements
11 and Mitigation Measures" (beginning p. II-45) lists several management requirements for "Herbicide Method" (item C, p. II-48). In items 5, 6, and 7, all the alternatives utilizing herbicides except the current (alternative F) are listed in each item. Why was alternative F excluded from the requirements and mitigation measures?

Item 5 - "When selecting an application method (alternatives B, C, E, and G) preference is given to those which affect the minimum amount of vegetation (target selective) and cause the minimum site disturbance".

Does this not apply to the current alternative? In the next paragraph, helicopter broadcast treatment is listed as the least target specific in a list of 8 application methods.

Item 6 - "Choice of herbicide/method of application will be made to minimize adverse effects on human health, wildlife, and the environment (alternative B, C, E, and G).

(Continuation of Forest Service response)

9 Modeling is based on data derived from the EPA and scientific literature is an adequate basis from which to draw scientific conclusions about the effects of herbicides. See also Letter No. 272, Comment Nos. 1, 5, and 6.

10 These statements are not contradictory. Different mitigation measures are required in the two altertnatives, which results in different conclusions being drawn about risk.

11 Alternative F represents the current situation, and, as such, cannot be modified by findings of the EIS no matter how good or bad they might be. Many of the mitigations developed are not currently used and thus are not represented as being used. This does not mean that hazardous or environmentally damaging situations won't be expeditiously corrected. Incidentally, the mitigations you refer to also do not apply to alternative H.

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Item 7 - "Within labeling constraints, timing of herbicide application (alternatives B, C, E, and G) is planned to maximize desired effect on target vegetation while minimizing effects on non-target and other environmental elements".

Does this also not apply to Alternative F?

Under "Supervision and Training" (p.II-50) item 10 states "All forest service application crews are supervised by a certified pesticide applicator. Crew members are trained in safe application procedures, personal safety, proper handling of herbicides and proper disposal of empty containers". What about plant identification training? The herbicide application method can only be as target selective as the ability of the applicator to identify which plant species are to be treated, especially with methods such as spot treatments and basal sprays. What about training of herbicide application crews which may be contract crews and not forest service employees?

12

The major concern with the increased use of herbicide is the potential for reducing understory vegetation utilized by wildlife. Manual herbicide application methods are primarily used on selected hardwood stems within the stand and generally are not applied to herbaceous vegetation. Broadcast applications, especially aerial application, are not selective and therefore can potentially eliminate wildlife food plants. Broadcast applications coupled with hot summer burns can be the most detrimental form of site preparation in terms of the loss of herbaceous and woody root stock. Over the past four years we have observed first hand the effects of this type of site preparation. On private industry lands where this practice is currently used, we have monitored re-growth following treatment and have observed almost no sprouting of herbaceous plant species commonly used by wildlife, particularly deer and turkey, up to two years after treatment. We have even observed a greater diversity of wildlife plants on heavy disked industry tracts than on spray and burn tracts. According to Hurst and Warren, 1981, in a study in Mississippi flatwoods habitat, "applications of each rate of most chemicals reduced production of deer forage significantly and promoted a grass dominated habitat" (Mississippi Agr. and Forestry Exper. Sta. Tech. Bull. 107, 1981). Cain (1985), in studying the long-term impact of hardwood control treatments in mature pine stands in upper Coastal Plain habitat found with foliar spray of herbicide that hardwood reduction was evident 23 years after treatment. He further concluded "long-term growth gains for overstory pines were apparently not improved by hardwood control" (Southern For. Exp. Station Research Paper SO-214, 1985). The importance of regeneration areas for deer browse production is well documented.

13

12 Forest workers (Forest Service or contract) will be expected to protect sensitive plants, animals, and habitats. While this EIS does not define specific training requirements for crews, during project planning contact will be made with appropriate individuals to determine what training is needed. On-the-ground plant identification training sessions are conducted through the Regional Botanist; also available are three correspondence courses that cover the identification of grasses, forbs, and trees and shrubs. In your particular area of concern, sessions involving personnel from the SCWMRD have also been conducted on the identification of sensitive plants that occur on the Francis Marion and Sumter National Forests.

13 Regeneration areas are clearly important deer browse production areas. In South Carolina, considerable browse is also produced in intermediate to mature timber stands. Depending on type of herbicide and method of application, deer forage may be increased or reduced. It should be noted that the Hurst and Warren (1981) study which you cite analyzed the impacts of broadcast application of 2,4,5-T (which is not used by the Forest Service) at a higher than normal rate, followed by an intense burn. Furthermore, the observed decreases were temporary and were followed by increased production by the second year. Reduction of woody species through release treatments may result in an increase of herbaceous vegetation used by deer. A study by Defazio and others (1988) referenced in chapter IV of the Final EIS found that on clearcuts site-prepared by broadcast herbicide application followed by burning, decreases in woody deer browse were not significant and were accompanied by increases in deer forage.

Band or strip herbicide treatments do not kill all vegetation. Response varies according to type of herbicide applied - some have little effect on herbaceous species, for example.

The question of deer browse production on the Francis Marion and Sumter is addressed in Forest Land and Resource Management Plans. Vegetation management activities on these forests must conform to plan standards and guides and must ensure that plan goals are accomplished.

As stated in chapter II of the Draft EIS, WSI treatments may be designed to improve habitat for a species such as deer by increasing browse or forage production. TSI or site preparation treatments may accomplish their stated purpose while favoring a variety of hard and softmast producers in selected clumps rather than throughout an entire stand.

Nothing in the Draft EIS should be construed as restricting the Francis Marion and Sumter National Forests to methods such as broadcast spray and burn if applying these methods wholesale would conflict with Land and Resource Management Plan goals and objectives for these forests. See response to your comment 5.

Current site preparation methods such as shearing and chopping generally maintain herbaceous vegetation. According to Halls and Boyd (1982), "the stability and potential of the forest to produce the optimum number of deer depends primarily on a productive understory that is kept within reach of deer" (Southern For. Exp. Sta. Research Paper SO-183, 1982). On page IV-59 of the DEIS in discussing the effects of herbicide on habitat, it is stated "depending on the herbicide applied, application rate and method, treatments can be detrimental to some wildlife species and beneficial to others." Most of the studies referenced which indicated a benefit to wildlife habitat through herbicide use were related to non-game bird diversity. Increased bird diversity resulted from a simple increase in the number of snags. If Plan objectives are being met, snags should be available even with mechanical site preparation methods. A study by Warren and Hurst (1986) is referenced on page IV-60 which suggested improved conditions for white-tailed deer and turkey by increasing seeds and forage with use of herbicide in pine stands 3-6 years of age. The study further stated, "when applied (herbicide) by broadcast methods, however, these treatments reduce the number of soft-mast producers such as vaccinium and dogwood, which are used by many species of wildlife".

General statements made in the DEIS suggests that a Forest Service major objective is the maintenance of quality wildlife habitat. In comparison to industrial forest management, wildlife management on Forest Service lands is far superior in most cases, however, equal consideration for wildlife in forest management is mandated in the National Forest Management Act. What is puzzling is that numerous statements in the DEIS suggests that both alternatives F and G will reduce woody vegetation and therefore reduce habitat quality for many species of wildlife. The major argument appears to be which alternative would be least damaging to habitat with statements often contradictory between alternatives. On page XII, it is stated: "vegetation is treated to enhance variety of wildlife habitat and protect forage production". Under general requirements and mitigation measures for wildlife and aquatic plants, item 15 on page II-41 reads "Wildlife stand improvement seeks to improve species composition in hardwood stands and to develop wildlife habitat areas for game and nongame species. A variety of woody and herbaceous species suited to site, aspect, and burning regime are maintained to assure a year-round food supply". Item 17 states "when conducting TSI, WSI, and site preparation, the Forest Service protects and manages selected groups of overstory and understory vegetation to assure a variety of fruit, hardmast, and cover species". On page IV-47, in discussing environmental consequences, it is stated "the numbers of soft-mast producing plants may be reduced by the application of herbicides or increased by a

mechanical method which encourages sprouting such as chopping". The selected alternative (G) would result in a decrease in mechanical methods. Table II-8, page II-64 and 65, presents a comparison of environmental effects by alternative. According to the table, woody under- and midstory vegetation would be reduced under alternative F and midstory would be reduced under alternative G but less than alternative F. On page II-71 under alternative F it is stated that "effects on woody vegetation are more severe than any other alternative except H (the maximum alternative). In the "Summary of Impacts by Alternatives" on pages IV-122 through IV-123, the following statements are made relative to alternative F which continues present levels:

> "Use of less selective broadcast treatments on larger acreage increases potential for damage to non-target vegetation". Note that herbicide will be applied on 27,000 acres annually compared to 1.8 times as many acres treated with herbicide under alternative G.
> "Higher intensity tools or combinations produce a greater decline in woody species".
> "Mast producers are often not favored due to use of non-selective treatments".

In the same summary of impacts the following statements are made relative to the preferred alternative G:

> "Increased use of herbicide treatments, plus introduction of aerial application by helicopter, puts non-target vegetation at a higher risk".
> "An increase in broadcast herbicide application reduces hard mast producers used by many animals on some sites, but increased use of selective methods favors mast producers on others".

The increased use of selective methods mentioned in the previous statement primarily represents "selective" herbicide methods where band or strip treatments are made adjacent to pine seedlings. This "selective method" is "non-selective" when compared to drum chop site preparation without later release activities. The treatments are actually non-selective in that they kill all vegetation in the band or strip including herbaceous and woody shrub species. This procedure when applied to an entire pine stand for release treatment would in fact violate one of the "Requirements and Mitigation Measures" set forth in the DEIS for range forage. Item (22) on page II-42 states "when managing for range forage species, wildlife and livestock use should not exceed 50 percent of current annual growth for key grass species, 20 percent of total annual production of key forb species and 20 percent of current annual growth of key shrub species". Deer browsing in many young pine

stands throughout the Sumter NF already exceeds 20 percent of the annual production of key forb species and current plans to use strip herbicide release would reduce available browse an additional 30 percent.

According to the DEIS (p.II-73) "most of the 7,000 acres (of aerially applied herbicide) are for rights-of-way maintenance and some for site preparation." Most if not all of the utility companies in the state maintain their own rights-of-ways by rotary mowing on a two to three year cycle. This currently provides
14 excellent early successional shrub/brush habitat which is heavily utilized by many wildlife species including songbirds, quail, and deer. These areas frequently provide a significant proportion of available deer browse when compared to adjacent pine stands. The aerial applications of herbicide to these very important non-forest areas could significantly impact habitat quality. The aerial application of herbicides to rights-of-ways would also violate a "Forest-Wide Standard and Guideline" for wildlife as stated on p.IV-3 of the Sumter Plan. The guideline reads "Manage utility corridors as per Special Use Management Plan to provide wildlife food and cover".

15 The buffer areas for herbicide application near lakes wetlands, or streams presented in item (27) on page II-53 are too small with 100 feet for aerial application and only 30 feet for ground applied herbicides. Buffer zones are currently being left to provide water quality protection and wildlife habitat diversity. Herbicide buffers should be in addition to current buffer requirements.

16 The results of costs analysis for alternatives F and G as presented in the DEIS warrant questioning as to the methods used to derive estimated costs of $15.90/acre/yr. for alternative F and $15.11/acre/yr. for alternative G. In examining Table IV-18 (p.IV-109), of vegetation management costs per acre by method, it is apparent that the most intensive and expensive methods were used to calculate costs for the current alternative F which resulted in higher costs than alternative G. According to the table, the costs for chopping is lower ($75.00/acre) than for aerial herbicide application ($77.00/acre). To increase the final cost figure of alternative F, numerous acres of high intensity mechanical methods must have been included. These methods included chopping, piling, raking, and disking at a cost of $183.08/acre. As previously stated, piling, raking, and disking are not currently being used in the piedmont at this time so why include them in the costs analysis.

The management requirements and mitigation measures listed for prescribed fire on pages II-45 and II-46 suggest almost no constraint on the use of fire. Item (13) states "generally,

(Continuation of Forest Service response)

14 The EIS is a programmatic document for the entire Coastal Plain/ Piedmont area of the Southern Region. It does not prescribe which acres are to be treated with which tool but simply evaluates the effects of the tools when used. Utility companies in South Carolina currently using mechanical tools successfully will probably continue to do so.

As stated in chapter II of the Draft EIS, a forest may establish restrictions on vegetation management which are more stringent but not less than those specified. If a special use agreement on National Forests in South Carolina prohibits broadcast application of herbicides, then aerial application would not be used there. Provision for use of aerial application in the EIS does not mandate its use.

15 See response to comments in Letter No. 70, Comment No. 3.

16 In fact, under alternative F, numerous acres of intensive mechanical treatments are done. Because of adverse effects (see sections F and G of chapter IV in particular), only alternatives F and H allow these intensive treatments to occur (see table II-4). As alternatives were developed, there was no preconceived notion of which alternatives should be least or most costly. Base costs are derived from actual work done (see table IV-18), then multiplied by the amounts and kinds of work occurring in each alternative. See also Letter No. 73, Comment No. 10.

understory burns are not scheduled during nesting season to avoid disrupting reproductive activities". "Forest managers may, however, use burns to meet specific objectives, such as ... site
17 preparation". It is also stated under mitigating measures that "periodic growing season underburns are not allowed on the same site more than twice in succession without an intervening dormant season burn". This translates to burning a site three times in about one year with two being made during the growing season.

The effect of growing season burns on wildlife habitat will become even more significant when used in combination with aerial application of herbicides. Current growing season burns following
18 drum chopping for site preparation are generally spotty due to the inability of the fire to consume green vegetation. Once most of the vegetation is killed with herbicide, complete burns will occur resulting in complete elimination of herbaceous and woody vegetation root stock. In spite of this, the DEIS states that intensive use of fire will occur under the current alternative and not alternative G.

The Responsive Statement to the department's appeal of the Sumter National Forest Land and Resource Management Plan issued by the Regional Forester on 12/2/85 proposed 6 amendments to the standards and guidelines of the Sumter Plan.

The 6 amendments were added to the Standards and Guidelines with Amendment 1 to the Sumter Plan by the Forest Supervisor Donald W. Eng on March 24, 1986. The implementation of the Forest Service "preferred" alternative G would significantly weaken 3 of the 6 standards and guidelines. The 3 standards and guidelines affected are:

2.) "Aerial application of herbicides will not be permitted (a) unless the herbicide would not cause significant adverse effects on wildlife habitat and (b) without initiating a program of public involvement, preparation of vegetation management EIS and compliance with the NEPA process".

3.) "During site preparation utilize methods which provide for a hard and soft mast component as recommended by wildlife biologists or wildlife technicians through the silvicultural prescription process".

4.) "Mixture of species occur within stands and will be managed for plant and animal diversity. Where hardwood exists in midstory and/or overstory of a pine management type, management practices will encourage the continuance of the hardwood component up to 30% of the stand composition. This hardwood component must be useful in meeting resource objectives including hard

(Continuation of Forest Service response)

17 In actuality this translates to burning on a 3 to 5 year rotation with not more than two successive growing season burns.

18 Virtually no type of prescribed fire results in "complete elimination of herbaceous and woody vegetation root stock." Under the current program (alternative F), some fires of high intensity occur. These soil damaging fires are prohibited under alternative G.

mast and diversity as detailed in the Plan. Likewise, management practices for hardwood management types can retain a pine component up to 30% of the stand composition".

In addition to weakening 3 of the 6 standards and guidelines in Amendment 1, the implementation of alternative G will also affect other standards and guidelines in the Sumter Plan. According to
19 the Responsive Statement to the appeal the Standards and Guidelines are important in the implementation of the Plan. The third paragraph of the Responsive Statement reads: " Of the many Standards and Guidelines in the Plan, we consider the following to be most critical for wildlife habitat management since they will direct the spatial distribution of habitat".

- - "Manage and maintain a hard mast component in hardwood stands, mixed stands, special areas, inclusions, key areas and pine stands to provide an average of 65 pounds of hard mast per acre per year for each 1,000 acres".

- - "Utilize Standards and Guidelines contained in the R-8 Wildlife Habitat Handbook to manage habitat for designated featured species".

On page 8 of the Responsive Statement it is stated that to achieve mast producing hardwood objectives would require: "modifying site preparation practices and reducing planting rates to retain a hardwood component (dominant and co-dominants) in pine stands."

20 The implementation of alternative G would result in significantly more acreage being treated with herbicide therefore, potentially reducing substantially woody browse and herbaceous vegetation valuable to wildlife. Since Plan implementation began in 1986, 39 compartment prescriptions have been reviewed in the Tyger and Enoree Ranger Districts. These compartments represent approximately 20 percent of the acreage on the Tyger and Enoree Districts. The average percent hardwood is 22.8 percent and the average hardmast index calculated for each compartment is 37.9 lbs./acre. Only 12.8 percent of the compartments currently meet the forest goal of 65 pounds of hard mast per acre per year for each 1,000 acres. Although 87.2 percent of the compartments do not meet hard mast objectives, only 17.6 percent of the compartment prescriptions contain at least some provisions to substantially increase hard mast production. It is apparent that significant emphasis is not being placed on meeting one of the most important Standards and Guidelines. Adjustments to prescriptions have been made, however, when timber objectives were not being met. The implementation of alternative G could seriously decrease the ability to expand existing mast producing hardwood habitat throughout the forest by eliminating hardwood regeneration

(Continuation of Forest Service response)

19 **The alternative G would in no way weaken any forest standards and guides since each forest may be more restrictive than what is required by the vegetation management EIS.**

20 **It is the responsibility of each forest to establish standards and guides and ensure that minimum standards for compliance are met. See response 19 of this letter.**

in pine stands particularly adjacent to hardwood inclusions and upland hardwood stands. The decrease in hardwood coupled with the increased loss of soft mast producers by broadcast herbicide applications during site preparation will adversely affect wildlife, especially the wild turkey.

21 The use of herbicides during site preparation may also decrease the germination of wildlife seed mixtures presently being broadcast on regeneration areas with a goal of seeding 15 percent of these areas.

22 Numerous data gaps concerning toxicity and exposure to humans and wildlife are listed on pages IV-8, IV-9 and IV-51. The Forest Service contends on page IV-10 that direct costs of performing tests to fill the data gaps would be tens of millions of dollars and are too great to justify postponing issuance of the EIS. We do not feel that these costs are prohibitive when taking into consideration the size of the area to be afforded (4.6 million acres) and the possible adverse long term impacts. The Forest Service also states that by delaying vegetation management to complete all testing, the public would suffer increased hazard from wildfire, and production of goods and services would be reduced. We feel that the current methods of vegetative management are sufficient to minimize hazards from wildfires and provide adequate production of goods and services.

Listed below please find several other specific comments relative to our review of the document:

23 1. In considering dermal and eye irritation on pages IV-53 and IV-54, it does not seem reasonable that diesel oil is listed as an extreme dermal irritant but is non-irritating to the eye.

24 2. Recommend some guidelines be provided in section 3a on page IV-66 to minimize direct mortality of adult animals or destruction of eggs and young caused by mechanical treatments during the nesting season.

25 3. The importance of protecting some areas from burning is adequately documented on pages IV-64 and IV-65 for deer, rabbit and quail, but no guidelines are provided on how this can or should be accomplished.

26 4. The 4-6 year or 5-7 year prescribed burning cycles described for alternatives B, C, D, E, F and G are confusing and do not appear to be sufficiently different from each other to warrant

(Continuation of Forest Service response)

21 The use of herbicides during site preparation will not affect the germination of wildlife seed mixtures on regeneration areas except when imazapyr or tebuthiuron are used. However, coordination regarding timing of treatments will be necessary at the District level, when broadcast herbicides that affect herbaceous species are applied as a site preparation treatment after the seed mixtures have germinated and the plants are actively growing.

22 See Letter No. 272, Comment No. 15.

23 Data in Beck et al. (cited in the chapter 3 citations of the risk assessment) is clear. Dermal irritation to rabbits is severe even at low levels of exposure; a single exposure caused blistering and open sores. Diesel oil was, simultaneously, judged to be nonirritating in a reported primary eye irritation study.

24 Guidelines to address this concern should be addressed at the forest level and could apply as well to state-maintained wildlife openings used by nesting turkeys which currently may be treated mechanically during nesting season. See also response to comments in Letter No. 42, Comment No. 4.

25 Mitigation measure numbers 17 on page II-41, number 1 on page II-43, and number 14 on page II-46 of the Draft EIS specifically address this concern.

26 The prescribed burning frequencies presented are projected average treatment frequencies from reported field data. They consider habitat needs for a variety of wildlife species which utilize different successional stages. Impacts to woody understory species development, as well as the production of herbaceous species, were considered. Various treatment frequencies from research studies are compared and evaluated from a wildlife standpoint in chapter IV on pages 64-65, from a vegetation standpoint on pages IV 35-37, and from a soils impact standpoint on pages IV 73-78 of the Draft EIS. Further comparisons are provided on pages IV 113-128. When an area is devoted to quail management, a 2-year burning cycle may be employed.

comparison. Neither burning cycle seems sufficient to maintain early successional species such as quail which require a 1-2 year burning cycle. Perhaps the 4-6 year and 5-7 year burning cycles could be combined into a 4-7 year burning cycle and compared to a 1-4 year burning cycle.

5. On page xiii, it appears that alternatives E and G are best for wildlife, threatened or endangered species, and vegetation due to the balanced mix of low to moderate disturbance tools. In our opinion, alternative F is fully capable of providing the proper mix of disturbance necessary to maintain any successional stage of
27 vegetation and associated wildlife. Although there are provisions in Alternative F for high mechanical disturbance such as raking and heavy disking, realistically these tools would only be used by the prescriber if considered necessary for stand establishment. From our perspective these tools would rarely be used and would, therefore, have minimal negative impacts on soil productivity and degredation of habitats.

Based on the preceding comments, the department recommends that the Forest Service reject alternative G. The decision by the Forest Service to put into effect alternative G will result in an 83 percent increase in herbicide use which is unacceptable and likely result in significant losses in terms of wildlife habitat quality and wildlife resources on the National Forests in South Carolina.

We request that specific information be provided by district for National Forests in South Carolina including acres by treatment
28 methods for alternatives F and G, a breakdown of acreages for each mechanical method, and specific acres by method utilized in the cost analysis.

29 We also urge the Forest Service to select alternative F as the preferred alternative with the following constraints:

- The primary site preparation methods should not exceed drum chopping in intensity.
- Limit the use of "hot" growing season burning for site preparation.
- Limit herbicide application to selective methods such as injection, basal sprays, and spot sprays. Eliminate broadcast applications.
- Adhere to all wildlife Standards and Guidelines to increase the hard mast production throughout the forest.

27 Modeling estimated that alternative F has 2,600 ac/yr of raking and 500 ac/yr of heavy disking. Raking poses serious risk to soil productivity (page IV-82) and would degrade 156,000 acres over a 60 year rotation in alternative F. Heavy disking has minimal effects on soil productivity if mitigation measures (on pages II-46-47 of the Draft EIS) are used.

28 Chapter I, part C, explains the programmatic nature of this EIS. Since this is not a site-specific analysis, it is not reasonable or correct to specify where and when activities will occur. The best approach to determine activities for the Francis Marion and Sumter National Forests is to review the Forest Land and Resource Management Plan and the management prescriptions it contains. More specificity can be had by reviewing the Districts' annual program of work. This EIS describes for each alternative: a theme; a menu of methods; a menu of tools; contraints and objectives for use; and some acreage approximations used to model effects. The person conducting the site-specific analysis must apply the guidelines established in the selected alternative. See response to Comment No. 16 of this letter for an explanation of costs. See also Comment No. 1 of this letter.

29 The commenters preference for alternative F was included in the content analysis of all comments received. Many of the constraints requested for alternative F are contained in other alternatives. With the possible exceptions of A and B, alternatives conform to plan standards and guidelines for wildlife. See also response to Comment No. 11 of this letter. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

If you need additional information or clarification of any of my comments let me know.

Sincerely,

John E. Frampton
Chief, Game Section

South Carolina
Wildlife & Marine
Resources Department

James A. Timmerman, Jr. Ph.D.
Executive Director
W. Brock Conrad, Jr.
Director of
Wildlife and Freshwater Fisheries

August 10, 1988

John E. Alcock
USDA Forest Service
Southern Region
1720 Peachtree Rd. NW
Atlanta, Georgia 30367

Dear Jack:

Department staff have reviewed the Draft Environmental Impact Statement - Vegetation Management in the Coastal Plain/Piedmont. We appreciate the opportunity to review the document and offer the following comments for your consideration.

The DEIS presents eight alternatives, one of which is the preferred alternative (G). Most of the alternatives would not meet current timber or wildlife objectives as outlined in the Francis Marion and Sumter Land and Resource Managment Plans. For example, alternative A is the "no action" alternative. Under alternative B, vegetation management is done only to protect forest and grassland resources. With alternatives C and D, prescribed burning cycles of 7 and 6 years respectively would not meet current burning objectives. There is only one alternative (H) which is more intense in terms of timber management than the preferred alternative (G). Alternative H is the maximum vegetation control alternative with application of herbicides at maximum rates, intensive mechanical methods, and an increase in annual acreage treated from 553,000 acres to 801,000 acres. The only two alternatives which merit consideration are alternatives F and G. Alternative F represents current activities. Alternative G is the Forest Service's "preferred" alternative.

It is difficult to determine what the actual effect of implementing alternative G would be since the DEIS covers a large geographical area including forests in Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Texas. Acreage figures are not presented for each individual state or forest. According to the DEIS (p.II-2) "average acres treated per year by method are estimated. These acres are only projections used to evaluate environmental effects quantitatively. During implementation the actual program may

Rembert C. Dennis Building ☐ P.O. Box 167 ☐ Columbia, South Carolina 29202 ☐ Telephone 803 - 734-3886

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Louisiana Department of Agriculture & Forestry
Office of Forestry
Post Office Box 1628
Baton Rouge, Louisiana
70821-1628
(504) 925-4500

BOB ODOM
COMMISSIONER

CARLTON S. HURST
ACTING STATE FORESTER

August 19, 1988

Mr. John E. Alcock
Regional Forester
USDA Forest Service
1720 Peachtree Road, NW
Atlanta, Georgia 30367

Re: Draft CP/P
Attention Room 3625

Dear Jack:

1 We have completed our review of the Draft EIS, "Vegetation Management in the Coastal Plain/Piedmont". Steve McCorquodale and the rest of the EIS team should be congratulated for a very thourough and excellent document.

Alternative G, the preferred alternative, appears to be the most palatable to forest managers as well as an informed public. In order for our National Forests to continue to provide our citizenry with wood products, wildlife habitat, clean water, forage for livestock, and recreational opportunities, a well-coordinated vegetative management plan is essential. Increased usuage of herbicides is necessitated by the tremendous influx of non-merchantable hardwood species and aerial application offers uniform coverage and economy of scale.

Based on these facts and our knowledge of southern forestry, we fully endorse the preferred alternative (Alternative G) and encourage implementation.

Sincerely,

CARLTON S. HURST - ACTING STATE FORESTER

dkb

cc: Danny W. Britt - Forest Supervisor

BILLY W. WEAVER, LFC Chairman, Leesville
J. BURTON ANGELLE, Ex officio, Secretary, LA Department Wildlife & Fisheries, Baton Rouge
JOHN W. BOURES, Vice Chairman, Shreveport
MICHAEL S. BAER, SR, Bogalusa
BOBBY L. GREEN, Marion
DR. THOMAS A. HANSBROUGH, Baton Rouge
BURTON D. WEAVER, JR, Flora
"Equal Opportunity in Employment and Services"

Response to Comments in Letter No. 141

From: Carlton Hurst

Comment No.	Response
1	The interdisciplinary team is pleased that the commenter finds the EIS thorough and an excellent document. The commenter's preference for alternative G because of its ability to provide for multiple uses and preference for aerial application of herbicides due to economies of scale were included in the content analysis of all comments received. All alternatives, including G, have both favorable and unfavorable effects. Please see table II-8 on page II-64 and II-65 of the Draft EIS for a summary.

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Dr. Chris Long
Rt 35, Box 1815
Tallahassee, FL 32310
August 17, 1988

USDA Forest Service
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

Dear Forest Service Employee,

Thank you for inviting me to review the draft EIS Vegetation Management in the Coastal Plain/Piedmont Volume 1. Here is my review.

1 The scientific analysis that has been done to produce this document appears to be inadequate in at least one area: There is little direct information on what goals are desired and why they are desirable. This information is necessary in order to balance benifits against costs and risks of a proposed alternative.

Some of the alternatives respond to my concerns but they are difficult to evaluate without a detailed and in some cases quantitative measure of the benefits anticipated.

This publication devotes very little space to answering the question: Why do we need to do vegetation management? On page I-2, under Need For Action it says:

> As Forest Lands and Resource Management Plans are implemented, goals for output of goods and services for the present and future will be established. In many cases achievment of these goals requires vegetation management.

This implies that the goals have not yet been established. The reviewers are expected to evaluate the methods of meeting these goals without knowing what the goals are. A better proceedure would be to have the decision making process which establishes the goals take into account the consequences of meeting them. The main goal of vegetation management on large areas is to increase managed outputs such as timber production. When pursuit of this short term goal would degrade or pose a risk of degrading long term outputs and values it should not be pursued.

Many times and even after careful study, the use of new materials or chemicals or drugs has later proven to be a mistake. It is naive to think that a risk assesment can take

2 all possibilities into account. Therefore the use of herbicides should be strictly limited and aerial application of herbicides to large areas should not be allowed.

Many scientists see the rapid deforestation of Brazil by human activities as a contributing factor in the greenhouse effect. It is not yet known what the consequences of this effect are, but the proportion of carbon dioxide in the atmosphere has measurably increased due to human activities. Since most of the vegetation management methods described here promote the the growth of herbaceous plants at the expense of woody plants, it appears that the alternatives that treat more acres will exacerbate the greenhouse effect to a larger degree.

The whole idea that human tinkering can improve on natural processes is not borne out by experience. I recall an aerial photo of two of the Carolina barrier islands. One of

Response to Comments in Letter No. 142

From: Chris Long

Comment No.	Response
1	The EIS discusses methods and tools available for use, what intensity and frequency of treatments are used, and what management requirements and mitigation measures are applied to accomplish vegetation management objectives detailed in the forest plans of Coastal Plain/Piedmont forests. The purpose and need for vegetation management is discussed on pages I-1 and I-2 of the Draft EIS. Environmental conditions at the project level will determine the specific need for, and amount of, vegetation management to be done. Vegetation management decisions include the option of doing nothing (no action or no interference). Additional discussions regarding this have been added to the Final EIS, pages I-1 through I-4.
2	See response to comments in Letter No. 150, Comment Nos. 20 and 23. Scientific evidence presented in the Risk Assessment and the EIS supports the position that herbicides can be used as an effective, relatively risk free tool in the forest environment. Mitigation measures including reduced application rates, emphasis on selective rather than broadcast use, buffering sensitive areas, etc. are all added to improve the relative degree of safety for workers, the public and wildlife, and to minimize adverse effects to non-target plants and the environment.

the islands has been managed for decades to preserve and increase its beach area, but the photo clearly shows that the unmanaged island has much more beach today.

The Forest Service has the responsibility police itself in order to avoid the pitfall of all bureaucracies: a shift in emphasis from its original mission to emphasis on maintaining or enlarging the bureaucracy. Any FS preference for more management should reflect solely the attempt to meet the needs of the original mission.

3 This reviewer prefers alternative C because it represents the most cost effective way of maintaining the forests while emphasizing long term unmanaged outputs.

Sincerely.
Chris Long, Ph.D.

Chris Long

3 The commenter's prefernce for alternative C was included in the content analysis of all comments received. Alternative C does have the effects listed, but it also has effects considered unfavorable by other commenters.

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STEELY LUMBER CO.

RT. 8 BOX 350
HUNTSVILLE, TEXAS 77340
(409) 295-5898

August 17,1988

Forest Service
1720 Peachtree Road, N. W.
Attn. Room 362 S
Atlanta, Georgia 30367

To Whom It May Concern

I believe that the Forest Service should be able to manage
1 the national forest in a multiple use system that benefits all of the people of the United States.

Sincerely

Kelvin Steely

Steely Lumber Co. Inc

cc Texas Committee on
Natural Resources

Response to Comments in Letter No. 143

From: Kevin Steely

Comment No.	Response
1	The interdisciplinary team appreciates the comment. Please also see response to comments in Letter No. 173, Comment No. 3.

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United States Department of Agriculture

Soil Conservation Service

South National Technical Center
P. O. Box 6567
Fort Worth, Texas 76115

Subject: EVC - Comment on Draft EIS for Vegetation Management in the Coastal Plain/Piedmont

Date: August 19, 1988

File code: 220

To: John E. Alcock, Regional Forester,
Forest Service, Southern Region,
Atlanta, GA

Regarding the subject draft EIS, we have only the following comment:

1 Volume I, Section II-20 - "Heavy disking is commonly done to greater depths over large areas at stages steeper than 5%." While this practice is common, it often leads to excessive soil loss and potential water quality problems. It should only be used when specific problems require intensive site preparation, and then only when alternative treatments, such as ripping on the contour, will not produce the desired site preparation results. Preferred alternative (alt. G) does not prescribe the use of heavy disking; but rather, relies on herbicide and fire for vegetation control.

Stephen B. Owen ACTING
PAUL F. LARSON
Director

cy: James B. Newman, Director, Ecological Sciences, SCS, Washington, D. C.

The Soil Conservation Service is an agency of the United States Department of Agriculture

50

* U.S. Government Printing Office 1988—529-568/20577

Response to Comments in Letter No. 144

From: Paul Larson

Comment No.	Response
1	Heavy disking can produce serious erosion (page IV-76 of the Draft EIS) and sediment (page IV-89 of the Draft EIS), even with mitigation measures (pages II-46-47 of the Draft EIS). It is allowed only in alternatives F and H (pages II-7,10 of the Draft EIS).

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Rt. 3 Box 4410
Lufkin, TX 75901
August 13, 1988

USDA FOREST SERVICE
1720 PEACHTREE RD., N.W.
ATLANTA, GA 30367

Gentlemen:

This letter is in lieu of the RESPONSE FORM to the Draft Environmental Impact Statement.

COMMENTS ON SCIENTIFIC ANALYSIS:
It looks as though the Scientific Analysis is very thorough. However I would like to bring up one point. In calculating the hazards to non-target plant and/or animal life, the amount of hazardous materials used, or pollution created by the Forest Service in the vegetation management program, will be in addition to that from all other sources. For example, in the case of herbicide, the exposure rate or stream contamination level caused by vegetation management, may be within the acceptable risk, but add to this any other applications of the same or similar contaminants in the area, or runoff from possibly hundreds of miles of upstream waters, and you could have many times the safe level.

1

2 COMMENTS ON ALTERNATIVES:
Of the available choices, I have to choose " ALTERNATIVE D ". There needs to be an Alternative "X" using the same methods as "D" but with less total acreage. Less acres managed by prescribed fire, and possibly more by grazing. With about 400 to 450 thousand acres being managed annually. Prescribed fire cleans out underbrush, but is underbrush all that bad?

Why?
The main reason for choosing Alternative D is the "no herbicide" factor. It is the quickest and least expensive management plan now, but in my opinion the immediate and long range risks outweigh the benefits. DDT was great too at first, that is until the insects it was supposed to kill, became immune to it, and it was well on its way to annihilating many of the birds of prey. Most wounds from a mechanical tool will heal in a short time, but birth defects or organ damage from some chemical exposure are final.

3 OTHER:
Would it be possible to experiment with more biological control, (cattle or goats)? This seems like a natural way to control vegetation, does not appear to have any long term detrimental effects on anything, and would have immediate benefits.

I think it is entirely possible to over manage. Lets don't manage for "maximum yield", but for a sustained yield while keeping in mind other activities (hunting, fishing, hiking, etc.), that has great value not measured by x amount of dollars.

Thank you for the opportunity to express my views.

Sincerely,

Charles Graham

Charles Graham

Response to Comments in Letter No. 145

From: Charles Graham

Comment No.	Response
1	Herbicides used on national forests appear in very low concentrations (less than 0.050 ppm) in small perennial streams. By the time they wash downstream to the larger streams and rivers affected by heavier uses like farming, mixing and dilution have reduced them to such low concentrations that they have no detectable effect on water quality in addition to other uses (page IV-94 of the Draft EIS). Effects of other sources on terrestrial resources are negligible since only Forest Service activities are allowed onsite.
2	The commenter's preference for alternative D was included in the content analysis of all comments received. Alternative D, like all other alternatives, has both favorable and unfavorable effects. While not using herbicides may be favorable to some people, others object to having more accidental injuries, increased wildfires, and more sediment (see table II-8 of the Draft EIS for a comparison of effects). The proposed alternative X with less prescribed fire and more grazing is one of many possible variations. Eight alternatives were developed in response to issues and management needs, such as meeting output objectives in plans. To provide clear distinction between alternatives, several factors were varied such as methods available, intensity of treatments, frequency of treatments, total acres treated, and acres treated by any specific method. To establish a range of alternatives, alternative A proposed no treatments, B and C were at reduced acres, and, at the other extreme, a full vegetation control without constraints alternative was considered but eliminated (see part C of chapter II in the Draft EIS). All alternatives (A through H, and two not studied in detail) were developed in response to issues and management requirements.
3	The Interdisciplinary Team feels that alternatives in the Draft EIS provide an adequate range of acres to assess the effects of using biological methods for vegetation management. The acres presented considered the current grazing allotments that could effectively contain the animals as well as other variables such as size of treatment areas, animal feeding selectivities, proximity to water sources, and interactions with wildlife populations. As with any method used, biological methods can have both favorable and unfavorable effects on the environment based on site characteristics, soil types, season, etc. Furthermore, those acres are only projections used to evaluate environmental effects; the actual program upon implementation may vary from these projections. See also response to comments in Letter No. 174, Comment No. 7; and Letter No. 150, Comment No. 13.

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

SUBJECT: DEIS for Vegetation Management in the Coastal Plain/ Piedmont, USDA FS/Southern Region, May 16, 1988
Response form for period ending Aug. 25, 1988

Why? Pursuant to the suggested format and "note to reviewers," the following comments address first the adequacy of the scientific analysis presented, and second the adequacy of the alternative plans proposed in meeting significant long- and short-term goals.

Comments begin on this supplied form and continue on five additional pages.

Comments on Alternatives:

I. SCIENTIFIC ANALYSIS

Why? Generally the scientific analysis appears to reflect careful review of research literature and modeling. Two areas of weakness are noted here, however: (A) the absence of substantial essential research data, particularly as to the extent of negative long-term, cumulative, and synergistic consequences resulting from application of most of the proposed herbicides; and (B) the lack of attention to certain areas of highly important research as to probable impacts. 1 2

Other: Both the scientific data and analysis presented in the DEIS and the absence or lack of data in key areas of importance have critical implications for the choice of alternative vegetation management strategies or plans.

Why? * * * * *

Much of the data is well presented and well analysed. For instance: the listing of representative woody species (Tables III-3 and III-4), the listings of endangered, threatened and sensitive animal and plant species (Tables III-5 through III-8),

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Richard H. Hiers

Name: First MI Last

506 SW 40th Terr.

Street

Gainesville, FL 32607

City State Zip Code

Response to Comments in Letter No. 146

From: Richard H. Hiers

Comment No.	Response
1	In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." (40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier regulations. Thus, we have attempted to address both sets of regulations in our analysis. Where data were available, neither cumulative nor synergistic effects have been reported for any of the eleven herbicides discussed. Short half-lives (except tebuthiuron) and rapid excretion rates for all of the herbicides suggest that neither synergism nor accumulation pose a problem. All data found in the literature and Region 8 accident reports has been included for consideration; no evidence of synergistic or cumulative effects has been discovered.
2	An extensive literature search was conducted for research on the subject of herbicides. In addition to consultation with EPA, both Labat-Anderson, Inc. (LAI) and the Vegetation Management Team exhaustively searched the scientific literature concerning health effects of herbicides. Inquiries were made of 21 library and toxicology data bases (DB) including: Medline, Toxline, Embase, Hazardous Substances DB, Registry of Toxic Effects of Chemical Substances DB, BIOSIS Previews, CAB (Commonwealth Agriculture Board) Abstracts DB, and Enviroline DB.

the analysis of worker and public risk in connection with each of the proposed herbicides (Tables IV-1 through IV-6), and projected risks of exposure for fish and aquatic animals resulting from terrestial and aerial spills of each of several herbicides or adjuvants (Tables IV-8 and IV-9).

(A) As the DEIS acknowledges, however, most of the projected data as to negative consequences (for humans, wildlife, water, and long-term soil productivity) of continuing herbicide application derives from theoretical modeling, rather than controlled, data-generating empirical research. As is noted under Research needs, pp. IV-129-30, much more needs to be known as to the long- and short-term consequences not only of specific herbicide applications, but also of most of the other treatment or management methods, particularly slash burns, prescribed fire, growing and dormant season burns, and intensive mechanical site preparation treatment on humans, soils, water, habitat, and particular plant and wildlife species. The absence of data as to specific and cumulative effects
3 of herbicides is critical. Likewise, the lack of data on long-term effects of combined herbicide-fire treatments on animal, particular, threatened, endangered, and sensitive species is of concern.

(B) Certain highly important areas of research are neglected in the DEIS.

4 1. The recently proposed theories that the global biosphere is seriously threatened by rapid depletion of the stratospheric ozone layer and by the possible "greenhouse effect" resulting from increasing quantities and percentages of atmospheric CO_2, both, unfortunately, appear already to be confirmed by continuing empirical findings as well as the 1988 summer record heat and drought patterns. Each of these developments is potentially catastrophic. Both should be addressed in the DEIS.

(a) Data and modeling analysis is essential to identify and project long- and short-term consequences of ozone layer depletion and CO_2 increases on forest and range growth and reproduction and related effects on human and animal habitats and health. (The importance of research on the effects of air pollutants on growth and reproduction of vegetation is already recognized in the DEIS. P. IV-129.) If loss of the ozone layer and/or CO_2 increments are likely to have adverse effects on vegetation growth and reproduction, such effects should be anticipated, and the goals and strategies of forest and other vegetation management should be adjusted so as to mitigate if not counter these effects in order to insure optimum survival of vegetation and affected life forms.

(b) Research should attempt to determine whether forest and range vegetation can function to off-set the effects of ozone layer depletion and/or the atmospheric CO_2 build-up, in order to improve prospects for long-term human and diverse vegetation

(Continuation of Forest Service response)

3 No scientific data was found suggesting that negative synergisms or cumulative effects will occur where herbicides are used at proposed application rates (mitigation measure number 4 on page II-48 of the Draft EIS) in conjunction with prescribed fire.

4 CO_2 is the most abundant gas produced by wildland fires, but amounts due to prescribed fire are too small to affect the global CO_2 balance (page IV-102 of the Draft EIS). Relationships between CO_2 production, ozone layer depletion, air pollution, and vegetation have been added as a research need in the Final EIS.

and animal survival. It is known that vegetation absorbs CO_2 from, and releases O_2 into the atmosphere. It would be important to know what contribution Coastal Plain/Piedmont vegetation can make in restoration of O_2 in the atmospheric CO_2/O_2 balance regionally, nationally, and globally.

A related major question for further research is the role of the Coastal Plain/Piedmont vegetation in contributing to cooling and moisture retention in the region.

2. It would be important to develop research into the effects of vegetation on filtration or decontamination of air pollutants. What types of vegetation are most effective in this connection? How many hundred thousand or million acres of vegetation are required to have a significant effect in counteracting or absorbing the more serious air pollutants?

3. Research on the questions noted in I(B)(1-2), supra, should also be conducted with respect to the nation's vegetation as a whole, particularly, national lands under the jurisdiction of the FS and other USDA divisions. The Coastal Plain-Piedmont region is a significant segment of FS jurisdiction and of national lands generally, and such research is highly relevant to the selection of both goals and strategies in the short-term, as well as long-term, for purposes of this DEIS.

5 4. Although brief mention is made of the golden eagle, no attention is given otherwise in the DEIS to the consequences of the alternative vegetation management plans and methods for migratory birds. Certain species are dependent on seasonal forage in the Coastal Plain/Piedmont areas for successful completion of their migratory flights. This area encompasses most landing and recovery sites for the numerous species arriving from South and Central America, and preparation sites for their return flights south. The area also constitutes critical as well as basic habitat for northern species wintering in the South. Substantial relevant data should be gathered and analysed.

6 5. Though the DEIS makes passing mention of the effects of herbicides and certain adjuvants on honey bees (IV-52), the DEIS gives no attention otherwise to the effects of herbicides on other insects, or of the effects of any other treatment modes on any insect populations. Many types of insects are known to be beneficial, indeed, essential to vegetation, notably by pollination and by controlling various destructive organisms. Others are valued as endangered, threatened or sensitive species. The contributions of many to various eco-systems are unknown. Lack of attention to the potential impacts of the different alternative vegetation management plans and methods on insect populations constitutes a serious omission in the DEIS.

(Continuation of Forest Service response)

5 Some vegetation management practices may be favorable to some migratory bird species but unfavorable to others. See chapter IV of the Draft EIS for a discussion of how vegetation management activities affect production of hard- and soft-mast and other vegetation such as herbaceous species. Detailed analysis such as is requested is beyond the scope of this EIS. Such site-specific analysis must be made when evaluating any proposed action (see mitigation number 1 on page II-35 in the Draft EIS).

6 Effects of the analysed herbicides are discussed in appendix A of the Draft EIS. Except for dicamba which is moderately toxic and limonene and diesel oil which are highly toxic to honeybees, the other herbicides are low in toxicity to honeybees. Considering these low toxicities, the low rates of application, and overall small percent of all lands treated, adverse impacts on insect populations are expected to be inconsequential.

II. COMMENTS ON ALTERNATIVE MANAGEMENT PLANS AND METHODS

(A) Overall goal and objectives

I strongly agree with the overall goal as stated on p. IV-133: "National forests must be managed to protect long-term productivity of the land." I understand "productivity" to include the totality of the objectives identified in the DEIS, including production of timber, protection of significant wilderness areas, wildlife (both game and non-game) habitat and forage, hiking and camping, employment, and primitive experience opportunities, soil conservation, restoration of endangered, threatened and sensitive plant and animal species, and protection of water resources. Pursuant to achievement of these objectives, I would urge inclusion of
7 protection of habitat and forage for migratory birds, and for preservation of the widest variety of insect populations.

In addition, it is essential to include identification of the effects of ozone layer depletion and atmospheric CO_2 build-up (as well as of air pollutants) on vegetation growth and reproduction.
8 And it is essential to include serious and substantial attention to ways in which vegetation management on Coastal Plain/Piedmont and other FS and USDA lands may best function to counter the consequences of ozone layer depletion and/or atmospheric CO_2 increases. I recognize that it is more likely that such management can affect the O_2/CO_2 balance than the ozone layer problem, but because of the magnitude of their importance, both problems should be considered in the DEIS in connection with vegetation management objectives.

Effects on temperatures, precipitation, soil water retention, and drought conditions must also be considered. In addition, the role of vegetation in filtering or absorbing and degrading toxic air pollutants should be part of the DEIS consideration of the goal of maximizing long-term land productivity.

(B) Comments on specific alternative management plans and methods.

I first indicate concerns about certain types of alternatives and about certain methods or tools. Second, I rate those alternatives that are more likely to achieve the overall goal and objectives noted above, indicating first, second, third, and fourth choices among the acceptable alternatives.

1. Given the known hazardous nature of certain treatment methods or tools, and the lack of knowledge as to long- or even short-term consequences of continuous, maximum, and synergistic application or utilization of several of these treatment methods or tools on various non-target entities, use of some such methods or tools should be avoided entirely, and use of others kept to an absolute minimum.

(a) Rejected alternative management plans

Because of the known consequences of intensive wildfires in areas of maximum fuel accumulation, Alternative A should be rejected. Because of the anticipated long-term detrimental effects especially on soil productivity--which is absolutely essential to the achieve-

(Continuation of Forest Service response)

7 Measures described in chapter II of the Draft EIS are designed to achieve your stated goals regarding productivity and preservation of a variety of insect populations and migratory bird habitat. See also Comment No. 5 of this letter.

8 See response to comment 4 of this letter.

ment of the overall goal and related objectives of vegetation management--Alternatives F and H are rejected. Because of the known risks of broadcast herbicide use, and the little that is known as to the effects of most scheduled herbicides on non-target populations, alternatives G and H, which allow both more extensive use of herbicides and less selective, aerial disperson techniques are rejected.

(b) Rejected methods or tools

Because of their non-selective character and/or long-term degradation of soil and habitats and risks to human and domestic and wildlife species and desirable plants, certain methods or tools should be rejected or used only in rare and extreme
9 circumstances: (1) Intensive mechanical, particularly bedding, heavy disking, piling and raking. Ripping should be avoided where there is more than low risk of soil erosion and water degradation. (2) Intensive slash burns. (3) Aerial application of herbicides.

Those herbicides that present moderate to high and very high or severe risks to humans, wildlife, fish and aquatic animals and insect populations when applied at maximum scenario levels or introduced through accidental spills should be eliminated completely or reserved for very restricted use in extremely rare circumstances. See herbicide data presented in tables on pp. IV-50 to IV-19, IV-21, IV-57 to IV-58; see also data indicated
10 on pp. IV-50 through IV-59. In view of the absence of basic information on the toxic effects of most of these herbicides on humans and wildlife (see pp. IV-48 through IV-56, 59), great caution should be exercised in the use of even those herbicides with low risk projections at maximum use or accident spill levels.

2. Rating of acceptable alternative management plans

11 First choice: Alternative C. Generally safest; lowest costs per acre; low risk factors generally; low disturbance to soil; low fire intensity; lowest tons of smoke produced/ann.; favorable employment levels.

Second choice:* Alternative E. Allows safest methods for applying herbicides; limited moderate soil disturbance and prescribed fire; low per acre costs; highest employment.
* Caution: I would so rank Alternative E only if broadcast method of herbicide application is eliminated or severely restricted. Otherwise I would rank Alternative E as fourth (= last acceptable) choice.

Third choice: Alternative D. Avoids known and unknown risks from herbicide usage; limited moderate soil disturbance and prescribed fire intensity.

Fourth choice: Alternative B. Minimizes risks associated with herbicide use; uses only dormant season fires; low soil disturbance; methods highly selective as to plant and animal diversity; next to lowest per acre cost.

(Continuation of Forest Service response)

9 Most tools can be applied in a non-selective manner. Tool selection, as well as the intensity of application, will be based on site-specific analysis which evaluates project objectives, site characteristics, and potential environmental effects of any method considered. Mitigation measures such as number 1 on page II-35, number 3 on page II-44, numbers 1-8 on pages II-46 and 47 and numbers 1-30 on pages II-48-54 of the Draft EIS are used to protect site productivity, minimize effects to plant and animal species, and protect human health and safety.

10 It is agreed that careful use of herbicides is a major environmental and health concern. In chapter II of the Draft EIS mitigation measures (on pages II-48 to II-54) to be taken by field crews to ensure this careful, low-risk use are disclosed and required.

11 The commenter's preference for the alternatives was included in the content analysis of all comments received. All alternatives have advantages, and as noted, disadvantages. Each person using a unique set of values looks for advantages that fit those values. The Forest Service's preferred alternative represents hundreds of value sets and also allows for accomplishment of Forest Land and Resource Management Plan goals and objectives.

As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

The factors considered in the DEIS and in the above comments cut in many directions. Each alternative has particular advantages and disadvantages. But choices must be made.

All four of the acceptable alternatives ranked above (C, E*, D, and B) achieve some balance among desired objectives; though some emphasize one or more all are adequately achieved. I have noted what I consider the main positive mitigating considerations in connection with each, recognizing that each has certain relatively positive and negative features.

* Note qualifying caution above, p. 5.

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Walter Fox
Consulting Forester
&
Commercial Pesticide Applicator

August 22, 1988

USDA Forest Service
1720 Peachtree Rd. NW Rm. 3623
Atlanta, Ga. 30367

Gentlemen:

The Draft EIS for Vegetation Management in the Coastal Plain PIEDMONT is well done and provides an excellent analysis if alternatives. The Draft EIS also provides a cure for insomnia, but then, no one has ever figured out how to make an EIS exciting.

1 It's good to learn that aerial application of herbicides is back in the proposed program. Hopefully, the Regional Forester will have the guts to keep it in thefinal program. I fully support the preferred alternative (G).

2 A question of little import comes to mind at this time. There is limited space given to the use of adjuvants in herbicide mixtures. I use adjuvants with every application of foliar applied herbicides, and I'm convinded that adjuvants improve efficacy of the herbicide. There is some evidence (Dr. James Miller, USFS Auburn) that an adjuvant does improve efficacy in a particular kudzu treatment. In addition, it appears to me that any adjuvant which is a "sticker" would prevent the herbicide rubbing off on people or animals who contact the sprayed vegetation and also not permit the herbicide from being washed off the vegetation by rain - this last could have a positive impact on the adjacent environment. Is there any evidence to support my thoughts here?

Thanks to all the team members (full & part time) for the effort which has provided such an excellent analysis.

Sincerely,

Walter Fox

Route 2 • Box 175 • Martin Georgia 30557 • Telephone 404/779-2854

Response to Comments in Letter No. 147

From: Walter Fox

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received.
2	Spreader-stickers slightly increase resistance to human or animal ruboff of herbicides from plants. However, a large part of the application program uses herbicide solutions in water, and spreader-stickers will not prevent rain wash-off of these herbicides.

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AGRICULTURAL RESOURCES CENTER
115 WEST MAIN STREET
CARRBORO, NORTH CAROLINA 27510
919/967-1886

August 22, 1988

Steve McCorquodale, Team Leader
Vegetation Management EIS
USDA Forest Service
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

RE: Comments on Draft EIS, Vegetation Management, Coastal Plain/Piedmont

Dear Mr. McCorquodale:

As we discussed by telephone on August 10th, the Agricultural Resources Center and its PESTicide EDucation project are very interested in the issues raised in the Draft Environmental Impact Statement, Vegetation Management in the Coastal Plain/Piedmont, by the U.S. Forest Service, Southern Region.

We are in the process of preparing comments on the draft EIS and will submit them to you as soon as possible. We expect to complete them shortly, but not before August 25th, and to have them in your hands by September 1, 1988. We apologize for the delay and ask your consideration of them.

ARC's comments will focus on issues related to pesticide use and the choice of methods. We are particularly concerned that the Forest Service's "preferred" alternative calls for:

--almost doubling the number of acres on which herbicides will be applied--to about 50,000 per year;
--cutting the use of mechanical clearing methods by about half; and,
--minimal use of manual and biological methods.

We are concerned that the draft lacks an Integrated Pest Management (IPM) alternative and contains no guidance for deciding how to chose the best strategy for any given location or pest.

We expect that ARC's more complete comments will:

--praise the Forest Service for an EIS which represents more planning on vegetation management than ever before;
--argue that the draft is incomplete because it does not contain an IPM option;
--outline the need for and elements of an IPM option; and,
--discuss other selected problems with the EIS.

We believe the proposed plan should manage vegetation with an emphasis on prevention and natural processes, with intervention at the first clear sign of potentially significant damage, and with prevention preferred to remedial action; all vegetation control

methods should be available, with herbicides considered as a last option. An IPM option should include:

--monitoring and analysis of sites and problems;
--determination of injury levels;
--determination of action levels to prevent damage;
--selecting strategies which are least disruptive of the environment and pose the least harm to human health; and,
--follow-up evaluation to determine effectiveness; this step feeds back into an on-going program of monitoring.

Choice of method is a key. IPM is not just the use of a variety of methods or more than one herbicide. It is a positive program in which all management tools are available and in which the least disruptive and least risky means are given priority, with herbicides as a last option. It is concerned with the whole ecosystem, emphasizing natural and biological processes, rather than looking at a particular pest in isolation. IPM emphasizes long-run sustainability of the forest ecosystem.

An IPM alternative is appropriate and practical. This fact is underscored by the inclusion of a viable IPM option ("Alternative D"), as a preferred alternative in the comparable draft EIS for Region 6, Washington and Oregon, Managing Competing and Unwanted Vegetation, October 1987, pages II-12-13. That EIS also includes an IPM framework for decision-making which applies to all methods and all alternatives under consideration. [pp. II-54-61] IPM is equally appropriate for the Southeast. The environmental review required under NEPA is incomplete without it.

I apologize for the delay in our comments. We were not aware of or involved with the scoping or other activities leading to the draft EIS and have only recently been able to focus on it. We are hampered by its length and complexity, very limited resources, and coordinating people at some distance. The few extra days we ask to submit our comments will, we think, result in a document much more useful to you and your team. Even so, our comments will be less comprehensive than we would like or the draft EIS deserves.

Please consider this letter as preliminary comments until the arrival of our more complete review. Please don't hesitate to contact me about any issues raised in this letter. Thank you very much for your consideration.

Sincerely,

Allen Spalt
Director

cc: Jean Kruglewicz, Regional Environmental Coordinator, USFS
Deborah Wassenaar, Southern Environmental Law Center

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AGRICULTURAL RESOURCES CENTER / PESTicide EDucation project
115 West Main Street Carrboro, NC 27510 (919) 967-1886
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August 31, 1988

Steve McCorquodale, Team Leader
Vegetation Management EIS
USDA Forest Service
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

RE: Comments of the Agricultural Resources Center on the Draft EIS, Vegetation Management, Coastal Plain/Piedmont

Dear Mr. McCorquodale:

The following comments on the draft Environmental Impact Statement (EIS), Vegetation Management in the Coastal Plain/Piedmont, prepared by the U.S. Forest Service (USFS), Southern Region, April, 1988, are submitted by the Agricultural Resources Center and its PESTicide EDucation project. In the preparation of these comments, ARC has consulted with the Southern Environmental Law Center.

The Agricultural Resources Center (ARC) is a private, non-profit, public interest organization with offices in Carrboro and Raleigh, North Carolina. ARC conducts research and public education on a variety of agricultural and natural resource issues and, through its PESTicide EDucation project (PESTed), has a special interest in pesticides, their application, hazards, and safe use.

INTRODUCTION.

Pursuant to the requirements of the National Environmental Policy Act (NEPA), an EIS must fully and objectively analyze potential environmental effects and a full range of alternatives to a proposal. [40 Code of Federal Regulations (CFR) Section 1502.1] The purpose of an EIS is to provide decision makers and the public with enough information to aid in the substantive decision whether to proceed with a project in light of its environmental and economic consequences. The requirement of an EIS helps to ensure that federal agencies adequately consider the alternatives that may avoid or minimize those effects before a final decision is made. [See: Save Our Ten Acres v. Kreger, 472 F.2d 463,466 (5th Cir. 1973).]

While the draft EIS presents a beginning for evaluating some of the concerns associated with a vegetation management plan for the Coastal Plain/Piedmont, it contains serious and substantial deficiencies.

First, the heart of the EIS is the discussion of alternatives. [40 CFR 1502.14] Under NEPA regulations of the Council on Environmental Quality (CEQ), the EIS should present the environmental impacts of the proposal and the alternatives in comparative form, "thus sharply defining the issues and providing

a clear basis for choice among options by the decision maker and the public." [Id.] To meet this requirement of "providing a clear basis for choice among options", the EIS must fully explain the criteria, analysis, and reasoning used to develop alternatives. In this case, the EIS completely fails to disclose the criteria or reasoning used to develop the alternatives presented or to select among the alternatives.

1

Second, the EIS "must rigorously explore and objectively evaluate all reasonable alternatives." [40 CFR 1502.14(a)] In this case, the EIS is deficient both because it fails to consider a full range of alternatives, including an IPM approach, and because it fails to objectively evaluate some of the alternatives included.

2

Third, the EIS must contain a thorough discussion of the potential environmental impacts from the proposed action. The draft EIS is deficient because it fails to adequately address certain significant environmental effects of the project. Moreover, some of the methodology used to evaluate the environmental effects is inadequate, thus further rendering the discussion of environmental effects deficient.

3

Finally, an EIS must explain how the mitigation measures proposed will be effective to minimize harm. The mere listing of mitigation measures in an EIS is inadequate to satisfy the NEPA requirement to develop mitigation measures to minimize or alleviate potential damage to the environment. [See, e.g.: Oregon Natural Resources Council v. Marsh, 628 F.Supp. 1557 (D.Or. 1986)] In this case the Forest Service has not analyzed the mitigation measures in detail or explained how it believes they will be effective.

4

It is essential that the Forest Service address these and other concerns before developing its final preferred alternative in a final EIS. Many of these concerns could be addressed if the Forest Service were to propose a true Integrated Pest Management (IPM) approach, as the ARC strongly recommends.

5

I. THE DRAFT EIS FAILS TO INFORM THE PUBLIC AND THE DECISION MAKER OF THE METHODOLOGY AND BASIS USED TO DEVELOP ALTERNATIVES AND OF THE CRITERIA USED TO SELECT AMONG ALTERNATIVES. [40 CFR 1502.1; 1502.2(d); 1502.14]

To meet the requirements that the EIS "provid[e] a clear basis for choice among options by the decision maker and the public," set forth in the NEPA regulations of the CEQ, 40 CFR Section 1502.14, the agency must fully explain the criteria, analysis, and reasoning used to develop alternatives and the criteria used to select among alternatives. The draft EIS is inadequate because it wholly fails both to explain the methodology used to develop alternatives and to explain the process and analysis used to select among the alternatives presented.

Response to Comments in Letter No. 150

From: Allen Spalt

Comment No.	Response
1	Alternatives were developed to respond to issues and cover a full range of acres treated, mix of methods, and intensity and frequency of treatments. See section II-A and II-B, which have been expanded in the Final EIS, and tables II-3 through II-7. The rationale for selecting the preferred alternative will be in the Record of Decision accompanying the Final EIS.
2	Eight alternatives are developed in response to issues and management needs, such as meeting output objectives in plans. To provide clear distinction between alternatives, several factors are varied such as methods available, intensity of treatments, frequency of treatments, total acres treated, and acres treated by any specific method. To establish a range of alternatives, alternative A proposed no treatments, and, at the other extreme, a full vegetation control without constraints alternative was considered but eliminated (see part C of chapter II). All alternatives (A through H and two not studied in detail) were developed in response to issues and management requirements. All were analyzed, discussed, and described in the same manner. Please also see response to comments in Letter No. 14, Comment No. 1, and regarding Integrated Pest Management principles see response to comments in Letter No. 279, Comment No. 1; and Letter No. 295, Comment No. 1.
3	Chapter IV of the Draft EIS contains a detailed analysis of significant environmental consequences. Appendices A, B, C, and D provide supplemental technical background for the discussions in chapter IV. Where potential significant effects are identified, specific actions are required (see chapter II, pages II-35 to II-54 of the Draft EIS) in order to minimize the effect. Evaluation methodologies are explained and citations for sources are given routinely throughout volumes I and II of the Draft EIS.
4	Chapter II, part E, pages II-35 to II-54 of the Draft EIS contains management requirements and mitigation measures. This section is constructed so that following each measure or requirement (sometimes a group of 2 or 3 very similar requirements) there is a paragraph explaining the intent of the requirement, how effective the requirement is expected to be, and how monitoring will be conducted to measure accomplishment of intent.
5	See response to comments 1 and 2 of this letter.

A. The EIS provides no methodology or framework for developing alternatives.

6 The draft EIS fails to disclose any set of criteria or analytical framework on which the alternatives under consideration are based. Most of the alternatives were formulated by starting with the existing forest management practices and tinkering with the balance of methods to be employed in an arbitrary and unexplained way. Alternative F represents current practice. Alternatives D, E, & G propose treating the same number of acres but each with a different mix of methods, such as no herbicides (Alternative D), lesser use of herbicides (E) or greater use of herbicides (Alternative G) than at present. Alternative H

7 provides for maximum, intensive treatment on the greatest number of acres. But, the draft EIS fails to disclose how or why any of these alternatives were developed. Alternatives A through C are the only alternatives that appear to have been developed independently of current practices, but again the reasoning and criteria underlying these alternatives are not explained.

It is not only necessary and appropriate to include the framework used for developing alternatives, it is also eminently feasible to do so as shown by the inclusion of such an analytical framework in the draft EIS on Vegetation Management for the Pacific Northwest Region, Managing Competing and Unwanted Vegetation, October, 1987. [Hereafter cited as: Pac. NW, DEIS"] The section, "Implementing the Alternatives", pages II-51-61, details a five step analytical framework for vegetation management.

The draft EIS for the Coastal Plain/Piedmont lacks any such analytical framework. Without a fully explained, methodology for developing the alternatives, the draft EIS cannot provide a "clear basis for choice among options" as required by NEPA regulations.

B. The draft EIS provides no basis for choosing among alternatives.

8 The draft EIS is deficient because it provides no criteria or analysis for selecting one method of vegetation management over another and instead is wholly arbitrary in the choice of alternatives. Among the deficiencies that result from the lack of criteria for selecting among alternatives, the draft EIS provides no basis for determining the appropriate frequency of vegetation management treatments needed, which frequencies vary from alternative to alternative, and also provides inadequate justification for the resumption of aerial application of herbicides, a method not currently in use.

9 The lack of any analytical framework for developing alternatives and the lack of any criteria for selecting among alternatives are also serious deficiencies in the draft EIS because of the impact on assessing risks. Risks are evaluated and accepted not in isolation but in relation to choices. A level of risk that may be acceptable when it results from the use of the method posing the least risk under the circumstances may not be acceptable if a less risky alternative is available. Without

(Continuation of Forest Service response)

6 See response to comments 1 and 2 of this letter.

7 See response to comment 2 of this letter. Issues were identified during public involvement which encompassed public comment and management concerns (section E, pages I-4 through I-7 of the Draft EIS). Themes were then developed based on the issues, and the interdisciplinary team determined the mix of methods appropriate to each theme (section A, page II-1 of the Draft EIS) based on professional experience with and scientific knowledge of the environmental conditions in the Coastal Plain/Piedmont section of Region 8. Additionally, expanded discussions on the need for vegetation management, including strategies available to meet those needs, can be found in revised section I-B of the Final EIS. New sections I-C and I-D have been added to the Final EIS, and outline the implementation of vegetation management projects.

8 The public Record of Decision (1505.2) displays the justification for the final decision of which alternative is selected for implementation. Analytical data used to compare effects among alternatives is in chapter IV and is summarized in sections F, G, and H of chapter II of the Draft EIS. Effects of varying treatment frequencies are discussed in chapter IV of the Draft EIS (especially see parts C, D, F, and G). Frequencies are varied to vary effects in response to issues (Draft EIS, chapter II, part A, item 3).

9 Choice of a specific method for field application will be made at the site-specific level. Circumstances which affect the specific choice of tools are determined from site-specific analyses, the mitigation measures and management requirements this EIS establishes for the use of specific methods and tools, and the forest plan standards and guides for the individual forest. Alternatives in this EIS are displayed and discussed within carefully described parameters (chapter II, pages II-2 through II-20 of the Final EIS) -- which allows meaningful analysis of effects of proposed actions and legitimate comparison between alternatives.

knowing the criteria either for developing the alternatives or the choice of method, it is impossible for the decision maker or the public to determine the appropriateness or the acceptability of any given risk.

II. THE DRAFT EIS FAILS TO RIGOROUSLY EXPLORE AND OBJECTIVELY EVALUATE ALL REASONABLE ALTERNATIVES. [40 CFR 1502.14(a)]

10 The heart of any EIS is the section discussing alternatives. The draft EIS is deficient both because it fails to consider a full range of reasonable alternatives and because it fails to objectively evaluate some of the alternatives presented.

A. The Draft EIS fails to consider a full range of Alternatives.

NEPA requires an EIS to consider every reasonable alternative. The existence of a viable but unexamined alternative renders the EIS inadequate." [See: Citizens for a Better Henderson v. Hodel, 768 F.2d 1051 (9th Cir. 1985); Residents in Protest-I-35-E v. Dole, 583 F. Supp. 653 (D. Minn. 1984)] Here the Forest Service has failed to discuss several obvious, viable, and reasonable alternatives in the draft EIS.

11 1) The Draft EIS should include an IPM Alternative.

Of particular concern is the failure of the draft EIS to include an Integrated Pest Management alternative. IPM is a widely recognized and effective approach to dealing with pests. It is, therefore, a reasonable and appropriate alternative to be included.

IPM is a process for managing any pest problem rather than a rigid technique for dealing with a specific pest. It is, therefore, feasible to apply it to the problems of vegetation management in the Coastal Plain/Piedmont for which this draft EIS was prepared. Further demonstration that it is a reasonable alternative for inclusion is the fact that an option incorporating IPM principles has been included in other similar Forest Service environmental documents. An IPM approach is, for example, included as "Alternative D", one of the Forest Service's preferred alternatives, in the draft EIS for the Pacific Northwest Region. [Pac. NW. DEIS, summarized at pp. II-12-13]

--Elements of an IPM Vegetation Management alternative:

An IPM forest vegetation management program can be summarized as follows: Monitoring and analysis to understand pests in relation to their total environment; managing unwanted vegetation with regard for the entire ecosystem and its long-run sustainability; emphasizing prevention and natural processes; intervening early at signs of potentially significant damage in order to avoid large scale remediation later; employing the least invasive and least toxic methods, with herbicides as a last option; and using follow-up monitoring and evaluation as a part of a continuing program.

In addition to monitoring and analysis, choice of method is a key to a true IPM program. IPM is not just the use of a variety

(Continuation of Forest Service response)

10 Please see response to comment 2 of this letter.

11 See response to comments in Letter No. 279, Comment No. 1; and Letter No. 295, Comment No. 1.

of methods or more than one herbicide. It is a positive program using all management tools, in which the least disruptive and least risky means are given strong preference, and with herbicides as a last option. It is concerned with the whole ecosystem, emphasizing prevention and natural and biological processes, rather than looking at a particular pest in isolation. IPM emphasizes the long-run sustainability of the forest ecosystem.

An approach to IPM vegetation management is detailed in the attached statement, "Defining and Implementing Vegetation Integrated Pest Management", by Norma Grier as presented to the Pacific Northwest Region scoping team. A modified version was incorporated in the Region 6 draft EIS, as the basic philosophy underlying the choice of any of that region's proposed alternatives. [Pac. NW, DEIS, pp. II-54-61] See also the attached article by William Olkowski, "What is IPM?" [Common Sense Pest Control, vol. 3, no. 3, Summer, 1988, pp. 9-16]

The current range of alternatives in the draft EIS includes a variety of methods that could be a part of an IPM approach to vegetation management. But, they do not constitute an IPM alternative; they constitute a collection of techniques rather than the systematic approach to dealing with pests as required by a true IPM approach. The lack of an IPM alternative is a serious deficiency of the draft EIS. The lack of consideration of an IPM alternative in the draft EIS for the Southern Region should be addressed by:

a) adding a new alternative that incorporates the philosophy, system, and methods of an IPM approach; and,

b) including an IPM framework for all of the alternatives. This framework is appropriate because an IPM approach is so fundamental in determining how to treat a particular pest problem that it should be used to inform any reasonable alternative proposed.

2) The draft EIS should include an alternative in which the use of higher risk pesticides is excluded.

The draft EIS is deficient because it does not include an alternative in which those herbicides which pose higher risks to humans and the environment are not used. The draft states that some options will use herbicides with "minimal environmental and health risks". See descriptions of Alternatives B, C, & E. [USFS, Southern Region, Draft EIS, Vegetation Management in the Coastal Plain/Piedmont, April, 1988; Vol. 1, Section II, pages 2-6; N.B.: all cites are to this documents unless otherwise specified.] But, nowhere in the draft EIS is it specifically stated that certain of the herbicides considered will not be used. This omission is particularly troubling because several of the pesticides, such as 2,4-D, tebuthiruon, and fosamine, pose high risks, as the draft EIS acknowledges in part. The flawed risk assessment and bias in favor of herbicides in the draft EIS, discussed below in these comments, add to the concern.

12

12 Alternatives B, C, E, and G in the draft EIS include mitigations designed to reduce the impact of herbicides on the environment and on organisms within the environment. Alternatives A and D do not allow herbicide use. Alternatives F and H require only mitigations currently in place. Of primary concern in response to this comment are mitigations 4 through 7 on pages II-49 and II-50 in the draft EIS. These mitigations: 1) reduce application rates; 2) stipulate that preference will be given to target selective methods of application; 3) reduce the already limited herbicide spectrum for use on National Forest lands; and 4) require that applications consider public exposure as a primary concern. These mitigations are not constraining on the analysis of Alternatives F and H, but are for B, C, E, and G. Modified alternative G, found in the final EIS, is also constrained by the additional mitigation measures. Section II-B in the Final EIS has been clarified on this point.

It is entirely reasonable and appropriate that a clear alternative prohibiting the use of higher risk pesticides be included in the draft EIS. For example, the Pacific Northwest Region draft EIS includes such an option as one of its preferred alternatives. Region 6 "Alternative E" excludes the use of certain high risk pesticides, including, among those proposed for use in the Coastal Plain/Piedmont draft EIS, 2,4-D and Fosamine. [PAC. NW. DEIS, pp. II-14-15]

It is reasonable that a similar alternative should be included in this draft EIS in order to provide a full range of alternatives for consideration.

13 3) The draft EIS should include a more complete discussion of biological alternatives of managing vegetation.

The draft EIS is inadequate because it includes only an incomplete and inadequate consideration of biological controls. Livestock grazing is the only biological control evaluated. Other means of biological control are dismissed as "not currently operational". [p. II-34] The cursory treatment of biological controls is, in part, a reflection of the bias in favor of herbicides and against other management methods, as discussed more fully below. The use of biological pesticides, mulches, seeding with desired species, compatible vegetation, and other techniques should be included so that a full range of alternatives is available for consideration.

Contrary to the statement in the draft EIS that biological methods are currently "not operational", comparison with the Region 6 draft EIS gives strong evidence that greater use of biological methods is in fact a practical alternative that deserves full and objective consideration. Both regions propose treating a comparable number of total acres in their respective proposals. But for biological controls the Coastal Plain/Piedmont considers nothing more than a minimal role for livestock grazing. The Pacific Northwest Region proposes both greater variety of biological treatments and their much wider use. Excluding the "no action" alternatives, the smallest number of acres proposed for biological treatment in any alternative in the Pacific Northwest (4,300 acres in Alternative B), is 70% larger than the largest number proposed in the Southeast (2,500 acres in Alternative H). One of Region 6's preferred alternatives proposes 18,700 acres for biological treatment. That is more than 37 times more acres than in the Coastal Plain/Piedmont's preferred alternative. The average number of biologically treated acres in Region 6 is 8957, ten times more than the Southern Region's average of 857 acres.

B. The Draft EIS Fails to Objectively Evaluate the Alternatives Presented.

14 The draft EIS is deficient because it fails to objectively evaluate the alternatives presented, contains an unwarranted bias in favor of the use of pesticides, and contains proposals that are unrealistic, tending to distort consideration of all the alternatives.

Furthermore, each alternative that allows the use of herbicides does not mandate the use of herbicides. For these alternatives, the managers at the site-specific level have the choice of which herbicide to use (guided by the restrictions imposed in the above-mentioned mitigation measures); or they may choose not to use herbicides at all (see mitigation measure number 1 on page II-35 of the Draft EIS).

13 The other biological control methods listed on page II-34 of the Draft EIS must be proven to be safe and effective at an experimental level here in the South before being used operationally on a widespread basis. As we stated on page II-34 of the Draft EIS, when any of these methods is determined to be successful at operational levels, it will be evaluated for use in the Region's vegetation management program. No bias is intended. We consider it prudent to evaluate any new method at an experimental level prior to operational use. Many of the listed examples, such as microbial and viral agents, plant pathogens, and insects need to be thoroughly evaluated for safety and effectiveness prior to their introduction into the environment.

It is not possible to equate the very different environmental conditions, activities, and alternatives developed in the Region 6 document with those in Region 8. The Region 8 document was developed based on environmental conditions that exist in this Region. See also response to comments in Letter No. 145, Comment No. 3.

14 There is no bias towards the use of herbicides. The Draft EIS displays the effects of five different methods of vegetation management, of which herbicides is only one. In the Coastal Plain/Piedmont methods other than herbicides are projected to be used on 91 percent of the total acres treated in the preferred alternative G in the Draft EIS (page II-9); while herbicide use comprises approximately 9 percent of the entire vegetation management program. Furthermore, the determination of the most appropriate tool for a project must be made at the project level after site-specific analysis determines its suitability based on project objectives, species requirements, site characteristics, and effects on environmental elements such as soil productivity, vegetation diversity, wildlife, and threatened, endangered, proposed, and sensitive species. The requirement of site-specific analysis, mitigation measure number 1 on page II-35 of the Draft EIS, states that a reasonable range of alternative methods, including the use of methods which do not involve herbicides, will be examined and evaluated. Also, the Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

1. The draft EIS is contains an unwarranted and unjustified bias toward herbicide use.

The draft EIS contains an unwarranted and unjustified bias toward the use of herbicides. This bias is evident in the preferred alternative, Alternative G, that emphasizes increased herbicide use without adequate and objective justification. Alternative G, proposes nearly doubling the use of herbicides from present practices, decreasing mechanical means, nearly eliminating the use of manual and biological controls, and resuming the use of aerial application of herbicides without adequate explanation for such alternative.

The apparent bias toward the use of pesticides is present in many other places in the draft EIS. For example:

14a --Alternative G characterizes the use of pesticides as a "priority" without explaining why it should be a priority. [p. iv]

14b --The "Public Issues" are stated in a way that suggests that concern about herbicides and aerial application of herbicides are just "fears". [pp. v,vi] This attempt to minimize concerns about the effects of herbicides is inappropriate and demonstrates a lack of objective evaluation of herbicide risks.

14c --The summary of "social values" does not mention concern about toxics or the prevention of contamination of the environment. It is more concerned with public relations ("public acceptance") than with the substance of public concerns. [p. xv] The summary should include a complete and objective list of social values and is deficient without it.

14d --The draft EIS attributes negative attitudes about herbicides to "perceived" lack of communication and "suspected but unproven impacts". [p. I-5] This is an unjustified characterization of concern about herbicides. Negative attitudes are based on far more than just perceptions and communication problems. Many pesticides are known to have detrimental health and environmental effects. Public concerns must be taken seriously and considered objectively if they are to be adequately addressed.

14e --The draft EIS characterizes the possible use of the aerial application of herbicides as "opportunities" for aerial application, suggesting an unjustified and unexplained bias in favor of aerial application. [p. I-6]

14f --That the draft EIS gives inadequate consideration of alternative management methods, such as biological controls, as discussed above, also shows a bias toward the use of herbicides. [pp. II-34-35]

14g --An unsupported bias toward pesticides is also evident in the use of such statements as, "All herbicides and additives are safe for the public when applied using typical rates and methods."

(Continuation of Forest Service response)

14a The intent of this statement has been misunderstood. In the summary that is included in the Final EIS, this statement has been clarified and reflects that when we use herbicides, we will use those that pose minimum risks to humans, wildlife, and non-target plants.

14b These are serious concerns expressed by the public and recognized by the Forest Service while preparing this EIS. Herbicide risks were objectively assessed in the Risk Assessment and the EIS. (See sections 3 through 6 of the Risk Assessment, and Chapter IV, section B, of the Draft EIS).

14c This portion of the document is "summary" material. See Chapter IV of the draft EIS where full disclosure is made of data relevant to your concerns (chapter I, section E).

14d Based on the results of our analysis, we believe that concerns regarding the 8 herbicides and 3 additives approved for general use within the vegetation management program described in this EIS have been adequately addressed within the context of scientific analysis and disclosure. Public concerns have been taken seriously. Your statement that "many pesticides are known to have detrimental health and environmental effects" is a generalization which does not apply to this document. We do not evaluate all pesticides; we specifically evaluate 11 herbicides and 3 additives.

14e Choice of the word "opportunity" simply reflects whether or not this tool will become available for use.

14f Despite an extensive literature search, we are unaware of any biocontrol measures which are operational and within the scope of this document other than grazing. See response to comment 13 of this letter.

14g All herbicides and additives analyzed in this document were found to have acceptable levels of risk when evaluated using EPA standards (specified in chapter IV, section B, of the Draft EIS). The statement in the summary that will be included in the Final EIS has been changed to reflect this.

14h [p. xiii] This unsupported and unjustified assumption is repeated for terrestrial and aquatic wildlife, despite substantial data gaps and uncertainty in evaluating the impacts of pesticides on wildlife.

15 2) The Draft EIS contains extreme, unrealistic alternatives. The draft EIS proposes alternatives that are not realistic, tending to distort consideration of the other alternatives. For example, Alternative H, proposes aerial and ground applications of herbicides at the "maximum effective rates". Such rates would be the most likely to require mitigation measures to prevent or minimize damage from the use of toxics, but only minimal mitigation measures are even proposed for this alternative. [II-48] Alternative H requires more, not less attention to mitigation. The proposed Alternative H does not meet the NEPA requirement that an EIS discuss adequate and effective measures to mitigate potential damage tb the environment. As such, it can not even be considered as a serious or realistic alternative.

The effect of the inclusion of this alternative is to make other alternatives, particularly Alternative G, the Forest Service's preferred alternative with the greatest use of herbicides next to Alternative H, appear to be more "moderate". Inclusion of Alternative H seems to do no more than justify the preferred alternative, contrary to the intent of NEPA.

III. THE DRAFT EIS FAILS TO CONTAIN A FULL AND FAIR DISCUSSION OF ENVIRONMENTAL EFFECTS. [40 CFR 1502.16]

An EIS must include a full and fair discussion of significant environmental impacts. The draft EIS is deficient because it fails to adequately discuss potential environmental effects from the proposed action.

16 A. The Draft EIS is deficient because it gives inadequate consideration to the risks of aerial application of herbicides.

Alternative G, the preferred alternative, and Alternative H both propose the use of aerial application of herbicides. The draft EIS underestimates potential risks from such aerial applications in several important ways. Aerial application poses increased risks of off-site and non-target exposure and of catastrophic accidents.

The draft EIS assumes that aerial application will produce "large droplets to reduce drift potential", but the draft EIS fails to adequately analyze the potential effects of drift or how the drift will be minimized. [II-53] The size of the nozzle is not the only variable affecting drift, yet the draft EIS makes no attempt to objectively analyze other factors. There is more drift from aerial application than from any other method of application and as little as one percent of pesticides may reach their intended target. [David Pimentel, "Pesticides: Amounts Applied and Amounts Reaching Pests", Bioscience, 36:2, pp. 86-91] A large body of research demonstrates the added risks of drift from aerial application and shows that drift is a certainty. See for example

14h See response to Comment No. 14g of this letter.

15 Alternatives are considered by the interdisciplinary team to be reasonable and implementable as specified in chapter II, part A, item 4 of the Draft EIS. While the inclusion of alternative H makes other alternatives seem more moderate, the inclusion of alternative A makes other alternatives seem more severe. Alternatives A and H are included because a full range of alternatives is required by the regulations, not just mid-range alternatives to the exclusion of extremes. The interdisciplinary team can find nothing in the regulations or Forest Service policy that mandates exactly the same mitigations for every alternative. In fact, significant differences between alternatives would be difficult to achieve if such a requirement was imposed. In alternative H all mitigation measures presently required are applicable; the lack of additional mitigations in alternative H is consistent with its theme.

16 The EIS does not underestimate these risks. Drift potential is highest with aerial application. But drift is sharply reduced by using large-droplet nozzles instead of the fine-droplet nozzles studied in the past. Mitigation measure number 15 on page II-51 and number 25 on page II-53 of the Draft EIS reduce drift by requiring that large-droplet nozzles be used during favorable weather. They further reduce drift effects by requiring buffers and a screening process that favors least-risk herbicides. These factors were all considered in our detailed analysis of effects on humans (appendix A, section 4), wildlife (appendix A, section 7), and water (EIS section IV.G.1). Our situation (applying herbicides as large droplets to static vegetation) is far different from that in Pimentel's paper (applying insecticides as fine droplets to flying insects).

the attached article by Norma Grier, "Why Pesticide Spraying Means Drift". [Journal of Pesticide Reform, VII:4, pp. 6-9]

17 The draft EIS gives inadequate consideration to the risk of a catastrophic accident from the aerial application of herbicides. Helicopters flying close to the canopy loaded with toxics is an inherently risky business. In addition to the inherent risk of drift, use of aerial application of herbicides poses a real risk of a very large accident--a risk event that has not been given adequate consideration.

B) The draft EIS is deficient because it fails to fully and objectively discuss cumulative effects.

18 The draft EIS fails to adequately discuss the cumulative impacts from the proposed action, particularly from the use of herbicides. The draft EIS fails to adequately discuss the cumulative effects from year to year, from the varying frequency of treatments, from multiple treatments in the same or nearby area in a given year, or from the increased total use of herbicides in some of the proposed alternatives.

The failure to adequately consider cumulative effects directly impacts the assessment of risk as presented in this draft EIS. For example, the assumption that "it is unlikely" that wildlife would be exposed to herbicides "more than once in a lifetime" is unwarranted given the failure to consider the potential cumulative effects and the chronic risks to wildlife. [pp. IV-56]

19 The draft EIS does not evaluate the consequences of the total use of any given method of treatment or the effect of scale. It evaluates each method discretly, as if it were being used in isolation. But, it fails to evaluate the cumulative risk posed by the use of each method for the total number of acres proposed for each alternative. There is, for example, inadequate comparative evaluation of the total risk of using herbicides on 11,500 (Alternative E), 27,000 (F), or 49,500 acres (G). A degree of risk per acre that is reasonable on a small scale may be unjustified over a larger area, where, for example, concentrations of runoff may have greater impacts on water quality than has been considered.

C. The draft EIS is deficient because it fails to insure the scientific integrity of the methodology and analysis used. [40 CFR 1502.24]

The draft EIS is deficient because it uses flawed methodology and analysis thus providing an inadequate evaluation of the environmental effects.

<u>1. The draft EIS misuses the "LD-50's" and LC-50's" in its analysis.</u>

20 The evaluation of risks in the draft EIS is flawed because of an over-reliance on and misuse of the "lethal dose 50" (LD-50) and "lethal concentration 50" (LC-50) as measures of toxicity. These factors are the levels at which fifty percent of a test population

(Continuation of Forest Service response)

17 Accident scenarios analyzed in the risk assessment assume that a full 100 gallon tank of herbicide (100 gallons diluted for aerial application) is spilled from a helicopter into a reservoir. A sentence has been added to the liquid application section in the Final EIS stating that the 100 gallons is the maximum tank size in use.

18 See response to comments in Letter No. 73, Comment Nos. 13 and 159, and Letter No. 277, Comment No. 1. Also see pages IV 56-59 of the Draft EIS for a discussion of chronic effects on wildlife.

19 See response to comments in Letter No. 73, Comment No. 13. Cumulative effects are analyzed on a scale that promotes the sharpest practical evaluation. That is why cumulative effects are analyzed in the Draft EIS by specific types of sites for soil (pages IV-76-78, 82), by watersheds for water (pages IV-91-95), and over the entire area for air (pages IV-101-102). For example, analyzing cumulative effects on water in small watersheds takes a much harder look at effects coming from national forests than looking at effects over the entire Coastal Plain.

20 Evaluating wildlife and aquatic species risk using LD_{50} and LC_{50} data is the method described by EPA in the EPA Office of Pesticide Programs' document "Hazard Evaluation Division--Standard Evaluation Procedure: Ecological Risk Assessment." For the EIS we have accepted and utilized this procedure. Additionally, the herbicides do not bioaccumulate (chapter IV, pages IV-56 and IV-59 of the Draft EIS and page 8-2 of appendix A), so cumulative effects are only likely where multiple exposures are received in a short period of time. Multiple exposures to a single herbicide that might lead to cumulative effects or exposures to more than one herbicide simultaneously that might cause synergistic effects are unlikely because spraying operations are widely distributed compared to most species' home range size.

is killed in a short-term exposure, usually over several days. The LD-50 and LC-50's are single measures of one important acute effect: lethality. They give no information on other possible effects of exposure, short or long-term, or of the condition of the surviving population. As such, they are an unreliable indicator of the overall effects of exposure to herbicides. Particularly with regard to wildlife where chronic effects are completely discounted, the draft EIS over-emphasizes the role of LD-5-'s and LC-50's in assessing affects and does not fully and objectively assess the potential total effects of such exposure. The overuse of such inadequate measures of acute effects if particularly important since the draft EIS completely assumes that there will be no chronic effects on wildlife. [vol. I: p. IV-56; vol. II: p. 7-31]

2. The draft EIS makes the arbitrary and unjustified assumption that some risk is equal to no risk.

21 The draft EIS confuses some risk with no risk and arbitrarily equates them with acceptable risk. [IV-55,57] For example, in the consideration of risks to terrestrial wildlife, the draft EIS notes that the U.S. Environmental Protection Agency (EPA) considers a risk posed by a dose of 1/5th of the LD-50 as an "acceptable risk"; anything greater than that level is considered an "unacceptable risk." [IV-55]. Not only does the draft EIS accept without explanation the arbitrary and unjustified assumption that this level of risk is acceptable, but since the LD-50 provides information on only one of many possible effects of the exposure to herbicides, it doesn't even attempt to assess the acceptability risks of other effects. Risks acceptable to the EPA for the purposes of pesticide registration may not be acceptable for the purpose of this draft EIS.

22 In the case of aquatic life, the draft EIS states that the EPA considers levels of up to 1/10th of the LC-50 as posing "no risk", and that levels between 1/10th and 1/2 pose a "slight risk". [p. IV-56] However, the tables in the draft EIS summarizing the effects on aquatic animals, state that doses as high as 1/5th of the LC-50 pose "no risk". [Tables IV-9 & 10, pp. 57-8] Not only are these levels unjustified and the assumptions behind them unexplained, but once again they do not take into account any possible effect except the likelihood of death to the organism and are thus an arbitrary and inadequate measure of potential effects.

3. The draft EIS makes arbitrary and unjustified use of quantitative risk assessment without adequate data.

23 The draft EIS overuses and misuses quantitative risk assessment. The determination of supposed animal risk levels in the draft EIS is based on so much uncertainty that the quantitative conclusions about risk levels are unjustified. [Vol: p. 7-8] Estimates of risk to wildlife, for example, are based on quantitative assumptions that are not justified by the underlying data. Calculations purport to be accurate to many decimal places when it is acknowledged that there has been minimal testing for pesticide effects on most species and almost no chronic data

21 No presumption is made that some risk is equal to no risk. The terms "acceptable" and "unacceptable" used in conjunction with published risk assessment standards are judgments of some risk. The 1/5 LD_{50} standard proposed by EPA is not a registration standard. It is a standard proposed for "Ecological Risk Assessment" per the title of the document cited in comment number 20.

22 The original data for tables IV-9 and IV-10 in the Draft EIS was summarized from tables 8-17 through 8-33 in the Risk Assessment. Discussion on page 8-20 in the Risk Assessment shows that the parameters used were 1/10 = low risk, and 1/10 - 1/2 = moderate risk. Editorial change has been made in the legends of tables IV-9 and -10 in the Final EIS to correct this error.

23 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." (40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier regulations. Thus, we have attempted to address both sets of regulations in our analysis.

Where meaningful comparisons could be made between available data, quantitative analysis was done. Where necessary, analogy was used to develop these estimates. The Risk Assessment looks at a range of scenarios, from highly probable (typical) to unlikely (maximum) to very unlikely (accidents). Sufficient information exists concerning herbicide applications to make reasonable estimates of potential exposures under each alternative. The effects of those exposures are evaluated based on what is known about the toxicity of each herbicide from previous accidental and controlled human exposures and from laboratory animal studies. This risk assessment method is widely accepted in the scientific community. The Risk Assessment is supported by background herbicide profiles including those found in USDA Forest Service Handbook 644. Where information was found to be insufficient to evaluate what effects might occur, conservative assumptions were made. For example, 2,4-D was assumed to present a cancer risk although EPA considers the available data to be insufficient to draw this conclusion. Acute toxicity testing on the full formulations is part of the available data on each herbicide. The chronic toxicity of the inert ingredients in each formulation is evaluated for those inert ingredients considered by EPA to pose a risk of health effects (Lists 1 or 2).

developed. Purporting to calculate risk factors based on unsupported assumptions, such as exposure to drift from an herbicide application lasting 7.5 minutes, is arbitrary, unscientific, and unjustified. Such assumed precision is compounded by the very significant problems of intra-species extrapolation. Considering that the analysis all rests on the flawed data based for pesticides in general, and other problems discussed in these comments, the estimates of risks to wildlife included in the draft EIS are almost worthless.

Quantitative risk assessment is an essential tool, but it is limited in accuracy by the weakest link of its data. Under these circumstances, where there are so many unknowns, with uncertainties underlying assumptions added to extrapolations, a qualitative risk assessment is more appropriate. The draft EIS is deficient without it.

4. The draft EIS makes the arbitrary and unjustified assumptions concerning "acceptable cost" and "acceptable risk".

The draft EIS gives inadequate consideration to assessment of acceptable risk and acceptable costs, especially when they are indirect and/or involuntary. The draft EIS acknowledges that indirect costs are "difficult to quantify" and that, "It is also not always easy to determine who pays these costs." [II-66] The draft EIS assumes, however, that it can adequately make such determinations and that the indirect costs are not significant. 24 This assumption is unjustified and unwarranted. The draft EIS ignores entirely the question of involuntary risks.

In order to assess whether a risk or cost is acceptable, it is necessary to determine, "acceptable to whom?" Any cost or any risk may be unacceptable to someone who derives no benefit from the action or who is affected involuntarily. An overall balancing of risks and benefits and of costs and benefits, such as contained in this draft EIS, does not adequately address these issues. For example, a near-by resident or wilderness camper who receives no benefit from a spray application may consider that no level of risk is acceptable. Involuntarily born risks to near-by residents are considered in the draft EIS for the Pacific Northwest Region, and it is reasonable that they should be discussed in this draft EIS.

The attached article by Mary O'Brien, "Region 6, Herbicides and Public Perception of Risk", contains a more complete discussion of the acceptability of risk in the context of preparing an EIS. [Northwest Coalition for Alternatives to Pesticides, 1987, 5 pp.]

25 **D. The draft EIS fails to adequately and effectively provide for the protection of threatened and endangered species.**

The discussion in the draft EIS on the risks to threatened and endangered species is wholly inadequate. Several of the herbicides proposed for use, including 2,4-D, pose adverse effects to certain threatened or endangered species, such as the Red-Cockaded Woodpecker. The draft EIS, however, fails to analyze

(Continuation of Forest Service response)

24 See response to comments in Letter No. 85, Comment No. 1. There is little agreement on which indirect costs should be assessed, if any. Economists do agree, however, that indirect benefits as well as costs exist. Not all of these costs and benefits are borne involuntarily. To have pursued secondary, tertiary, and quarternary (or beyond) costs and benefits would have been unnecessarily complex within the scope of this EIS. As for health and environmental risks, direct, indirect, and cumulative effects (voluntary and involuntary) are rigorously analyzed in chapter IV of the Draft EIS.

25 Mitigation measures in section II-E of the Draft (pages II-48 to II-54) and Final EIS discuss ways to prevent adverse effects on threatened and endangered species. On those pages cited above, numerous mitigation measures besides buffer strips are required. These are also discussed in appendix D of the Draft and Final EIS and are used in the analysis in section IV-E. See response to comments in Letter No. 321, Comment No. 13; and Letter No. 320, Comment No. 16.

in detail the potential effect on these species or any detailed explanation of how harm will be avoided to these species. As discussed below, the only potential means discussed to attempt to avoid harm is the use of buffer zones, which in themselves are not sufficiently wide or effective to prevent harm. There is no attempt to propose use of lower risk pesticides that may minimize the threat of harm to threatened or endangered species.

26 The wholly inadequate assessment of risk to wildlife in the draft EIS, discussed elsewhere in these comments, is especially critical to threatened and endangered species. Dependence on the LD-50 and LC-50, which give no indication of chronic effects, is of particular concern where long-term survival of a species is already threatened. The total lack of consideration of chronic effects to wildlife in the draft EIS especially impacts these species of concern. Among other deficiencies in the draft EIS which can be expected to adversely impact threatened and endangered species is the apparent and unwarranted bias in favor of the use of herbicides and the resumption of the use of aerial application of herbicides, discussed elsewhere in these comments.

E. Failure to satisfy regulations applicable to Forest Land and Resource Management Plans.

Under the regulations applicable to Forest Land and Resource Management Plans ("Forest Plan"), vegetation management methods must "be best suited" to the goals in the Forest Plan, such as protecting soil and water resources, wildlife and fish habitat, recreational uses and aesthetic values, and the like, and must also consider the environmental effects set forth in the planning regulations. [36 CFR 219.27(b)] While the draft EIS states that it provides information for decisions on vegetation methods "that are most likely to accomplish the objectives" in the Forest Plans [pp. I-3], the draft EIS provides no detailed discussion of how 27 the various alternatives, including the preferred alternative, would or would not further the goals in the Forest Plan. Nor does the draft EIS fully consider the environmental effects detailed in the regulations.

F. Failure to consider the effects of Volatilization .

28 Pesticides applied in certain weather conditions, especially in hot weather, may vaporize and drift even if they originally were deposited on target. Some "inert" ingredients of herbicides used as carriers and ester formulations are particularly subject to volatilization. The draft EIS is deficient in its analysis of risks because it does not give the decision maker or the public information to evaluate the effects of volatilization.

29 G. The draft EIS fails to adequately consider the synergistic effects of the use of various herbicides.

The draft EIS fails to adequately consider the synergistic effects which may result from the use of herbicides. [IV-23-4] Most pesticides have not been tested for their ability interact with other pesticides or other chemicals in the environment. Lack of known effects does not justify the assumption that such effects are unlikely. The draft EIS makes the unjustified assumption that

26 Refer to response to Comment Nos. 20 and 25 of this letter.

27 The EIS is prepared to conform to the requirements of the National Environmental Policy Act. Chapter I, part A, explains that each forest has a Land and Resource Management Plan (which was prepared under 36 CFR 219). This EIS is to be implemented consistent with the goals and objectives found in Forest Land and Resource Management Plans. Plans set overall direction for managing national forests. The selected alternative from this EIS sets further direction on how vegetation is managed for the activities listed on pages I-1 and I-2 of the Draft EIS. Depending on which alternative is selected, Plans may need to be amended, especially regarding methods and tools alllowed and mitigation measures (standards and guides) applied. Amendments to Plans will be done through the Record of Decision for this EIS. Additional discussions regarding the relation of this EIS with Forest Land and Resource Management Plans can be found on pages I-1 through I-3 of the Final EIS. Also, more full disclosure of environmental effects will occur at the site-specific level.

28 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). See also response to comment 23 of this letter. The Forest Service will not apply herbicides in extremely hot weather and only low-volatility formulations are used. Exposure from volatilization would not be likely to add much to the amount estimated for drift (appendix C, pages C-4 and C-5).

29 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). See also response to comment 23 of this letter. Synergistic effects are discussed both in the Risk Assessment and the Draft EIS. In light of the data gaps recognized in the Risk Assessment, it was felt that the only meaningful approach to the problem of synergism was through analogs of the inerts where properties are known. No known or suspected synergism was identified in this process. (See chapter IV, section B, pages IV-23 and IV-24 of the Draft EIS, and appendix A, pages 5-46 through 5-49).

exposure to more than one chemical is unlikely, despite proposals in the draft EIS which allow the use of a number of herbicides for treatments every year, for multiple treatments, and for treatments on near-by or adjacent areas. Exposure to multiple chemicals is also possible from drift of pesticides, from exposure to smoke from burning vegetation, including herbicide-killed vegetation, and from water contaminated with runoff and/or drift, and from "inerts" and contaminants, known and unknown, from sources both within and outside of the Forest Service treatment area.

H. The draft EIS fails to adequately consider the effects of the use of "inert" ingredients in herbicides.

The draft EIS fails to adequately consider the effect of the "inert" ingredients in pesticide formulations. It is a step in the right direction that no inerts on the EPA's list of "inerts of toxicological concern" ("list 1") are proposed for use, however, the draft fails to adequately consider the potential effects of the categories of inerts that are proposed for use. [IV-12-13] One ingredient from EPA's list of "potentially toxic inerts" (list 2"), kerosene, is proposed for use. Of the rest, one is totally
30 unclassified and 10 are on EPA's list of "inerts of unknown toxicity," ("list 3"). [Vol. II:3-34] Where substances have not been tested for their long-term effects, it is inappropriate to assume that no data equals no risk. The Forest Service's preference for the use of "list 3" inerts is not justified when, by EPA's own standards, they are of "unknown" toxicity.

Not all "inerts" in pesticide formulations are known. Many products contain contaminants not present in the technical grade of the chemicals. For example, at least some formulations of 2,4-D are known to contain a form of dioxin. Evaluation of the effect of inerts is flawed without a complete discussion of possible contaminants of pesticide formulations

J. The draft EIS fails to adequately consider the chronic effects of the use of herbicides.

31 The draft EIS is flawed because it fails to adequately consider the chronic effects of exposure to pesticides. Most pesticides have not been adequately tested for their long-term effects, that is their ability to cause cancer, birth defects, genetic mutations, and damage to the nerve or immune systems. A 1984 study by the National Academy of Sciences found that there was only enough information to do a complete health hazard evaluation for about 10 percent of all pesticides and pesticide ingredients. [Toxicity Testing, 1984] For two-thirds, there was no toxicological information available. Several other studies, including those by the General Accounting Office and the U.S. House Agriculture Committee, have made similar findings. The ability to extrapolate between species, including from animal to human effects has been seriously questioned. Much of what is known, however, is disturbing. The draft EIS does not adequately take into account potential chronic effects and this state of
32 uncertainty regarding effects as required by NEPA. The draft EIS completely dismisses the possibility of chronic effects in wildlife, without adequate justification, and minimizes the potential chronic effects to people.

(Continuation of Forest Service response)

30 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). See also response to comment 23 of this letter. Information on inert ingredients in the proposed pesticide formulations was requested from the chemical companies and from EPA. That information is provided in the Risk Assessment. To date, only one inert ingredient considered of concern by EPA, kerosene, has been identified. Its risks were fully analyzed in the Risk Assessment. Where data is lacking, modeling or analogy is used to project potential adverse effects. Several negative effects are reported as directly related to surfactants or other inert products used in formulating herbicides for commercial use. We present, in table 3-8 of appendix A, a complete listing of inerts actively added to formulations.

We indeed do not know all information concerning possible contaminants in formulated products. However, with reference to dioxin please refer to response to comments in Letter No. 174, Comment No. 4.

31 See response to comment 23 of this letter.

32 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). See also response to comments 20, 23, and 29 of this letter. Within the scope of our herbicide program no scientifically documented chronic or synergistic health problems have been confirmed.

K. The draft EIS fails to adequately consider other effects of the proposal.

The draft EIS is flawed because it fails to adequately consider various other important effects of the proposed action. Among these deficiencies are:

33 --the failure to adequately discuss effects of burning, particularly of burning herbicide-killed vegetation; [See, for example, the attached articles by Roger Hart, "The Questionable effects of slash burning", NCAF News, Fall, 1987, and Winter, 1985.]

34 --the failure to adequately compare the environmental effects between alternatives, a deficiency only partly discussed here in relation to the question of cumulative effects; and,

35 --the failure to adequately explore the costs of the alternatives and to compare the costs between methods and alternatives.

IV. THE PROPOSED MITIGATION MEASURES ARE INADEQUATE AND INEFFECTIVE. [40 CFR 1502.14(f); 1502.16(h)]

An EIS must include a discussion of measures to mitigate adverse environmental impacts, analyze mitigation measures in detail, and explain their effectiveness. If the effectiveness or adequacy of the proposed mitigation measures is in question, the EIS cannot withstand scrutiny. In this case, the draft EIS fails to discuss adequate ways to mitigate adverse effects.

36 The lack of adequate mitigation measures for aerial application in the draft EIS is of particular concern. Despite the inherent risks involved in the aerial application of herbicides, the draft EIS proposes to mitigate their adverse consequences only by the use of wholly inadequate buffer zones. In fact, use of buffer zones is the only states measure to protect certain threatened or endangered species. Research, including that by and for the Forest Service itself, however, shows that the buffers proposed are not adequate. Several articles attached show the inevitability of drift and problems with buffer zones connected with aerial application of herbicides. They include: Pimentel, "PEsticides: Amounts Applied and Amounts Reaching Pests"; Grier, "Why Pesticide Spraying Means Drift"; U.S. Dept. of Interior, "Results of Stream Monitoring Program, 1977"; and U.S. Forest Service, Pacific Northwest Region, "Biological and Water Quality Monitoring, 1983 Spruce Budworm Spray Project, 1984".

37 Any mitigation proposal should include notification of near-by and adjacent landowners and forest users in order to prevent potential environmental and health effects.

Among other environmental effects for which the draft EIS discusses no or only inadequate mitigation measures are:

38 --the possibility of a catastrophic accident with an aerial spray helicopter;

(Continuation of Forest Service response)

33 Brown-and-burn is addressed in both the Risk Assessment (chapter 5) and Draft EIS section IV-B.

34 The environmental effects of the alternatives are compared briefly in the Draft EIS, sections II-G and II-H and in more detail in section IV-N. We believe these comparisons are entirely adequate and display significant effects as required in 40 CFR 1502.14 and 1502.16.

35 Table IV-18 in the Draft EIS provides an extremely detailed breakdown of method and tool costs. Activity costs are also displayed in this part of chapter IV. Within the summary of each alternative's effects in part N of chapter IV is a statement of total and per acre costs. For ease of comparison, costs are displayed qualitatively in table II-3 and quantitatively in table II-9. A qualitative display is also found in part H of chapter II for each alternative. See response to comment 24 above and response to comments in Letter No. 85, Comment No. 1.

36 The adequacy of buffers is demonstrated within the EIS (pages IV-85 to IV-87 of the Draft EIS). Previous discussion concerning control of drift and its effects is relevant here (see response to comment 16 of this letter).

37 See mitigation measure number 9 on page II-50 in the Draft EIS.

38 See response to Comment No. 17 of this letter. Mitigation measure number 30 on page II-54 of the Draft EIS deals with accidental spills.

39 --adequate means for mitigation of the effects of burning herbicide killed vegetation;

40 --chronic effects of the use of herbicides on wildlife, since such effects are arbitrarily dismissed as improbable;

41 --the restriction of the use of oil-containing herbicide formulations where there is any possibility of application or drift over water or wetlands;

42 --the harmful effects from the volatilization of chemicals from ground or, especially, aerial application;

43 --the intensive use of herbicides at the "maximum effective rates" in Alternative H; and,

44 --the effects of the use of herbicides and burning on the most sensitive segments of the population including infants, the elderly, individuals with respiratory problems, and the chemically sensitive.

CONCLUSION.

The U.S. Forest Service Draft Environmental Impact Statement for the Southern Region, Vegetation Management in the Coastal Plain/Piedmont, is seriously deficient in a number of important respects including those detailed in the above comments. It is important that these concerns, particularly an IPM approach to vegetation management, be addressed by the Forest Service before a final EIS is adopted.

Thank you for your consideration of these comments. We will be happy to cooperate in modifying the draft EIS.

Sincerely,

Allen Spalt

Allen Spalt
Director

(Continuation of Forest Service response)

39 See response to Comment No. 33 of this letter. A special mitigation for brown-and-burn was not needed, according to health analyses in EIS section IV-B of the Draft EIS.

40 See response to Comment Nos. 20 and 21 of this letter.

41 Mitigations in the form of buffers and the requirement that labeling be followed in chapter II address this concern. See response to comments in Letter No. 70, Comment No. 3.

42 See response to your comment 28 of this letter.

43 NEPA documents require that a full range of alternatives be evaluated. Alternative H responds to this criterion by allowing us full EPA registered rates of application in a program which includes large acreage of treatments.

44 Buffering and posting of treatment areas are required to protect the public from exposure to herbicides used in vegetation management. Exposure is not expected to occur when mitigation measures (Draft EIS, pages II-43 through II-54) are followed. In addition, the mitigation section (in Chapter II) describes the weather conditions required for, and actions to be taken during, prescribed fires to reduce risk to off-site populations. See also response to comment 39 of this letter.

REFERENCES:

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151

AMERICAN ORCHID SOCIETY, INC

6000 South Olive Avenue
West Palm Beach, Florida 33405
305/585-8666

August 22, 1988

Steve McCorquodale, Team Leader
Vegetation Management EIS Team
USDA Forest Service
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

Dear Mr. McCorquodale,

The American Orchid Society (AOS) Conservation Committee was just recently advised late last week of the " Draft Environmental Impact Statement for Vegetation Management on National Forests and National Grasslands " and in particular the Southern Region's " Draft Environmental Impact Statement VEGETATION MANAGEMENT in the Coastal Plain/Piedmont SUMMARY." Because of the lateness of notification, we were able to only obtain a copy of the above SUMMARY and excerpts such as Table III-8, Table B-16 and Appendix D from the first mentioned Draft.

As the comment period is rapidly closing and because we do not have access to the two volume Draft, we will not be able to state as definitively and fully as we would have wished. However, the AOS Conservation Committee does wish to comment on one aspect of the Vegetation Management Draft : that NO NATIVE TERRESTRIAL ORCHIDS of FLORIDA are included in the list of SENSITIVE PLANT SPECIES. Dr. Carlyle Luer in his book " The Native Orchids of Florida " lists just under one-hundred (100) orchid species of which about half are terrestrial which can be found in the Apalachicola, Ocala and Osceola National Forests. Also Florida Statutes of 1980 list five(5) orchids as Endangered and all other Florida orchids as Threatened. 1

Many of these " terrestrials " are found in bogs, meadowlands, transition zones, hardwood as well as softwood forests, in dense as well as open woods---- many of the kinds of habitats found in our National Forests and Grasslands.

We would like to call your attention to certain characteristics of terrestrial orchids. 1. They are very poor candidates for salvage and rescue as transplantation successes are extremely low. 2. Artificial propagation such as micropropagation and flask culture of these terrestrials is in the infancy stage of research with very poor results at this time. 3. There are poorly understood observances of the various root structure functions and habits.

Much of the three problems of the above is due to the delicate balance of, but required symbiotic relationship of the terrestrial orchid with specific fungi, beginning with germination and throughout the life of the orchid.

In Appendix D, it is stated on top of page D-2--- "In addition, the Forest Service has classified a number of animal and plant species on Coastal Plain/Piedmont forests as "sensitive" (tables III-7 and III-8 of the EIS). Habitats of sensitive species are managed to ensure population levels which will keep these plants and animals from becoming threatened or endangered."

Response to Comments in Letter No. 151

From: Sherlie Gade

Comment No.	Response
1	This has been corrected, see appendix E of the Final EIS.

AMERICAN ORCHID SOCIETY, INC

6000 South Olive Avenue
West Palm Beach, Florida 33405
305/585-8666

Therefore, the AOS Conservation Committee would encourage you to include the Florida terrestrial orchids in the list of sensitive plant species, Table III-B, as the unique needs and vulnerability of these orchids require special consideration in the management of their habitats.

I am enclosing our " Compilation of State Regulations Governing the Conservation of Their Native Orchis Species" and my own work sheets of my assignment on most of the southern states. I have marked in red, the terrestrials of Florida. These are only a small help in references.

2 Although our attention was directed towards the omission of the orchids of Florida in the sensitve plant species list, we would also encourage you to include the terrestrial orchids of the other states of Region 8 in the list of Table III-B. (At this time we note that only six orchid species from the surrounding states are listed.) Often the terrestrial orchids in Florida are those occuring in the southern-most part of the range of those orchids.

Again, we would like to ask your consideration to list native terrestrial orchids in your sensitive plant species list. As more and more habitats are lost to agriculture and development, we do look to you, the National Forest Service to aid in protecting the remaining habitats of native orchids. Many people in the Nation consider these orchids as some of our national treasures.

Thank you for giving us this opportunity to comment on your Draft of Vegetative Management of National Forests and Grasslands.

Sherlie Gade

Sherlie Gade, Chairwoman, AOS Conservation Committee
5840 Balderas Ave.
Pensacola, FL 32507

cc:
John E. Alcock, Regional Forester, Southern Region
Robert Jacobs, Forst Supervisor, National Forests in Florida
Dr. J. Woodson Phillips, American Orchid Society President
Dr. Alec Pridgeon, AOS Director of Education and Research
George Schudel, Working Committee/Conservation Committee
Robert Fuchs, Working Committee/ Conservation Committee
Ann Jesup, Vice-chairwoman, Conservation Committee
Melynda Reid, interested party

Enclosures: " Compilation of States Regulations Governing the Conservation of their Native Orchis Species "
Work-sheets

(Continuation of Forest Service response)

2 This has been corrected, see appendix E of the Final EIS.

152

August 20, 1988

Steve McCorquodale
USDA Forest Service
1720 Peachtree RD. N.W.
Atlanta, Ga. 30367

Sir.

Please enter these comments on the Draft Environmental Impact Statement for Vegetation Management (V.M.) I strongly oppose
1 the choice of the preferred alternative: G. Overall it is obvious that this EIS was prepared to support the continued practice of intensive timber management on National Forest (N.F.) lands. From the text, it appears that nearly all V.M. performs is for purposes relating to timber management. Even the claimed "fuel reduction" burning is just a guise for hardwood control and competition reduction for commercial stands of pine in most cases.

The DEIS. is obviously biased toward timber production and inadequately addresses the issues that were identified in the initial public input concerns. My comments will be based on the issues that the D.E.I.S. intended to address but, I feel, failed to do so.

Issue # 1 (as numbered in the D.E.I.S. pages I-4 thru I-7)

Balance of resources.

2 As previously mentioned, this D.E.I.S. heavily supports intensive timber management / clear cutting and site prep. It fails to show that timber will not overshadow other N.F. uses. The preferred alternative would continue to treat the same number of acres (553,500) as is currently taking place.

Response to Comments in Letter No. 152

From: Larry Shelton

Comment No.	Response
1 & 2	Please see response to comments in Letter No. 14, Comment No. 1. Please also see response to comments in Letter No. 79, Comment No. 1.

my experiences in many years in Texas N.F. (and others in this region ②) Have shown severe degrade of other N.F. uses from timber management. Alternative G would continue these trends with negative ecological consequences. Unnecessary impacts of V.M. include:

3 ① Soil degrade A) physical
I) Compaction
II) erosion, soil loss
III) loss of nutrients and organic matter

B) Biological
I) disruption or loss of interrelationships between plant and animal organisms living in the soil, much of which is microscopic and little understood at this time.

② Water quality degrade

4 1) disruption of leaf litter entering watersheds of clearcut and site preped areas.
2) Entry of herbicides into watersheds
3) mortality of aquatic communities from herbicides.
4) high fluctuations in water levels due to reduction or absence of vegetation.
5) increased scouring of stream banks and increased sediment loads.
6) less water retention on manipulated sites

② Wildlife habitat:

5 Intensive site prep and frequent burning are highly manipulative of habitat, often with negative impacts. Clearcutting and site prep eliminate any species dependant on trees from that area. Intensive site prep prevents natural succession.

3 Alternative G does not allow tools that cause serious erosion and loss of organic matter, soil micro-organisms, and nutrients (severe slash burns, raking, heavy disking). See chapter IV discussions on effects to soils, pages IV-73 to IV-84 in the Draft EIS, and appendix B.

4 Buffers provide large amounts of detritus to perennial and intermittent streams. Herbicides will not impair water quality or aquatic life in perennial streams, except where streams are accidentally overflown during aerial application (see response to comments in Letter No. 70, Comment No. 3). Increased runoff, flow extremes, channel erosion, and sediment are serious only with severe slash burns, raking, and heavy disking, which are allowed only in alternatives F and H (pages II-7 and II-10 of the Draft EIS)).

5 As with any vegetation management treatment, site preparation alters habitat in ways that are beneficial to some species, detrimental to others. Intensive site preparation does not prevent succession but interrupts natural succession and sets it back to an earlier seral stage. The purpose of vegetation management is to reduce, not eliminate, plant competition and to provide a wide variety of plants and habitat conditions beneficial to wildlife. Recovery of species occurrence and frequency depends on treatment frequency and is discussed in the Draft EIS on pages IV-35 to 37 and IV-40 and 41. It is nearly impossible to maintain "habitat on a per acre basis" throughout a forest. Rather, forest plans specify management practices designed to assume that a broad range of habitats are provided throughout the forest.

Intensive site prep is so different from most natural events ③ that species type and frequency would be altered to a point that succession and the "new forest" would be considerably different than the "previous forest." F.S. practices do not maintain habitat on per acre basis forest wide. Intensive site prep and intense fire also cause direct animal mortality as has been displayed in Texas N.F. (Four notch area).

④ Recreation: Site prep, burning and other types of V.M. have
6 an obvious negative impact on scenic qualities and recreation, Especially forest-wide dispersed recreation.

⑤ Wilderness: Likewise, V.M. makes an irreversible commitment against future wilderness designations.

Issue #3: concern for human health + safety.

All V.M. methods pose a risk to workers and often to the public as well. The D.E.I.S. documents the causes of accidents to workers performing V.M. Herbicide exposure, smoke inhalation
7 and mechanical site prep all contribute to worker injuries. The answer is to severely limit V.M. activities and adopt a silvicultural system that does not require mess vegetation manipulation. Herbicides can and do affect surface and ground water supplies (especially wells and springs that provide drinking
8 water). Smoke from extensive burning also offers risks to the public.

Issue #4 Reduced plant and animal diversity

To fully pursue this issue would take much length and detail. Biologists have documented the loss of species due
9 to intense disturbances (V.M.) and related habitat loss. The F.S. fails to address the individual characteristics of each site.

(Continuation of Forest Service response)

6 Vegetation management projects can have impacts on visual quality and dispersed recreation opportunities as discussed in chapter IV, pages IV-106 and 107 in the Draft EIS. They also allow maintenance of views and vistas, creation of improved access for dispersed recreation opportunities such as hiking, camping, viewing wildlife, viewing a variety of wildflowers and flowering shrubs, and hunting small or large game. Visual impacts are usually temporary, some lasting only a few weeks or months. Mitigation measure number 13 on page II-40 and number 14 on page II-41 of the Draft EIS are specifically designed to minimize adverse impacts to visual quality by matching appropriate methods and tools with forest Visual Quality Objectives (VQO's) and seasonal timing considerations. Possible impacts on future wilderness designation are beyond the scope of this EIS.

7 Each Forest Land and Resource Management Plan discusses which silvicultural system and associated harvest cutting methods are appropriate, and where they are to be used, based on each forest's unique mixture of forest resources and public needs. As stated on pages I-6 and I-7 of the Draft EIS, the issue of silvicultural systems is outside the scope of this EIS. Prior to any vegetation management treatment, projects will undergo site-specific analysis (mitigation measure number 1, page II-35 of the Draft EIS) which determines appropriate methods and tools, intensity and selectivity of application, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. Human health and safety is a primary concern in the design for any vegetation management project. Mitigation measures, such as number 12 on page II-40, number 1 on page II-43, number 10 on page II-44, number 11 on page II-45, numbers 2 through 5 on page II-48, numbers 6 and 7 on page II-49, numbers 9 through 12 on page II-50, numbers 13 and 14 on page II-51, numbers 16 through 23 on page II-52, numbers 24 through 29 on page II-53, and number 30 on page II-54 of the Draft EIS, are specifically designed to minimize risk to workers and the public from vegetation management projects.

8 For herbicide effects on surface and ground water, see response to comments in Letter No. 70, Comment No. 3. Prescribed fire certainly does emit smoke. But wildfires emit the same pollutants at greater rates, often at times when winds are unfavorable (pages IV 97 and IV-102 of the Draft EIS). In addition, eliminating prescribed fire would allow fuels to build up uncontrolled, producing a large increase in wildfire acres (page IV-103 of the Draft EIS). Therefore, the total smoke produced by alternatives D through G is less than alternatives A or B, and the control of smoke impacts is greater.

9 Site-specific analysis takes the individual characteristics of each site into consideration. Mitigation measures such as numbers 1 and 2 on pages II 35-36, numbers 15-17 on page II-41, numbers 12-13 on page II-45, number 14 on page II-46, numbers 2 and 5 on page II-48, number 7 on page II-49, and numbers 1-3 on page II-54 of the Draft EIS are designed specifically to protect and, in many cases, enhance the variety of habitats on national forest lands. Many endangered species are actually dependent on disturbances to perpetuate their habitat. See also response to comments in Letter No. 342, Comment No. 3; Letter No. 124, Comment No. 12; and Letter No. 340, Comment No. 26.

④

Foresters and timber markers are mostly unaware of what plants and animals occupy timber sale sites other than the tree species species are being reduced and eliminated from sites by F.S. ignorance or indifference. The D.E.I.S. proposes to continue the current decline and degrade of diverse species habitats. The D.E.I.S. also fails to address problems of severe loss of diverse species habitats on lands adjacent to the N.F.

Issue #6: cost comparisons between methods

The D.E.I.S. only addresses even-aged management and expensive
10 V.M. based on this system. The F.S. has failed to recognize the economic and ecologic benefits of uneven aged management and natural regeneration which would eliminate much of the cost of V.M.

Issue #7: loss of long term soil productivity

11 The D.E.I.S. proposes to continue the use of highly disruptive site prep that is known to reduce soil productivity. Research by a local timber company forester showed that less intense (burning) site prep resulted in tree growth that ultimately surpassed that of a comparable site that was intensively preped (shear and rake). I am familiar with a number of sites here in East Texas that have been clearcut and site preped by timber companies. Muliple plantings have failed to establish adequate stocking of these sites because the intense disturbances degraded the soil to the point where the growing conditions of even pine could not be met.

Issue #8 Diminished surface and ground water quality.

This issue has already been covered in Issue #1

10 All of the methods and tools analyzed in this EIS are applicable and available for use, as specified by each alternative, regardless of the silvicultural system or associated harvest cutting methods identified in Forest Land and Resource Management Plans. For either the even-aged or uneven-aged silvicultural system, site-specific analysis will determine appropriate methods and tools, intensity and selectivity of application, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. For example, vegetation management projects, with the objective of establishing the regeneration of a new age class, are designed to reduce plant competition, so that pine and/or hardwood seedlings receive needed amounts of sunlight, water, nutrients, and growing space in order to survive and grow, in both even-aged and uneven-aged systems. Costs of vegetation management are not eliminated under the uneven-aged silvicultural system.

11 The only site preparation tools that seriously impair long-term soil productivity are raking and severe slash burns (page IV-82 of the Draft EIS). They are allowed only in alternatives F and H (pages II-7 and 10 of the Draft EIS).

(5)

Issue # 9: Known + unknown effects of herbicides.

Research and exposure over time of chemicals have forced the "outlawing" of many herbicides and pesticides once thought to be safe. The list of "outlawed" chemicals is long and is growing each year. We are living in a world of acid rain, air pollution, contaminated ground water, polluted rivers and oceans, overloaded land fills, ozone holes, nuclear waste and a myriad of other pollution/ toxin/ poison related problems. To me it is insane for the Federal Government to knowingly and intentionally

12 spread more poison on this land. No amount of logic, mitigation, or excuses could ever justify the uses of poisons on N.F. lands

Issue # 10 opportunities for aerial application of herbicides

Same as above

Issue # 11 Benefits to wildlife habitats

Though much has been said about V.M. for wildlife's sake, I think that low impact, selection timber harvesting and prescribed burning on a program consistent with pre-settlement frequency and seasonality would provide all the manipulation that is required for diverse healthy wildlife populations.

In effect, the type of V.M. proposed in alt. G would

13 continue current trends on N.F. lands. These trends include irrepairable harm to native, functioning ecosystems and habitat fragmentation. The preferred alternative would continue the present decline in soil + water quality. With the loss of native ecosystems goes the loss of native plant and animal habitats and diversity.

(Continuation of Forest Service response)

12 Dr. Alice Ottoboni has written an excellent plain language guide to toxicology. The title of this book "The dose makes the poison" speaks directly to your concern. The difference between a usable tool and a poison is the dose to the target or non-target plant or animal being considered. We believe that by following the mitigations listed in chapter II of this EIS, vegetation management projects will be designed and implemented in such a manner that human health and safety; wildlife, fish, and vegetation diversity; long-term soil productivity; wate and air quality; cultural resources; and threatened, endangered, proposed, and sensitive species will be adequately considered and protected. For example, see response to comments in Letter No. 70, Comment No. 3; and Letter No. 97, Comment No. 2.

13 The commenter's preference for alternative A was included in the content analysis of all comments received. See response to comments in Letter No. 82, Comment No. 4; and Letter No. 79, Comment No. 2. Alternative A does have some of the favorable effects listed, but it also has effects (such as its inability to protect resources or to meet plan output objectives) considered unfavorable by other commenters. Chapter IV, part N, and chapter II, part H of the Draft EIS, summarize effects for all alternatives.

Due to the wide spread destruction of native ecosystems on (6)
private land, I feel it is increasingly important for the government to preserve the ecological well-being of our public lands.

Since none of the alternatives accurately reflect my preferenc
I must choose Alternative A - no action. In reality I would like to see logging done on a low impact selection type basis. Emphasis should be on ecological resource protection first with commercial timbering done only on areas that can stand this type of impact. When it comes to harmful environmental impacts, the F.S. should be attempting to eliminate and eradicate, rather than mitigate and minimize. Please send F.E.I.S. when it is prepared

Sincerely

Larry D. Shelton

Larry D. Shelton
R+4. Box 4480
Nacogdoches, TX. 75961

153

BILLY FORTIER
P O BOX 3103
LAFAYETTE LA
70502

Aug 20, 1988

U. S. Dept. of Ag. Forest Service
1720 Peachtree RD NW
Altlanta GA 30367

Dear Sir/Madam:

I am writing you at this present time regarding the draft E.I.S. for vegetation management in the coastal plain/piedmont. I consider the best alternatives to be:

1 ① Plan A - do nothing

② Plan D - doesn't have pesticides

I consider not workable or safe for the public: ③ All other plans - using pesticides.

Thank you,

Billy Fortier

Response to Comments in Letter No. 153

From: Billy Fortier

Comment No.	Response
1	The commenter's preferences for alternative A because nothing is done and for alternative D because herbicides are not used were included in the content analysis of all comments received.

154

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

Comments on Alternatives:

Why?

Other: Because I'm terribly ill, I've been unable to do more than skim over a few selected sections. Therefore, I have only two comments to make:

1 Why? (1) This is a thorough report.

(2) I wish it were possible to do nothing that would harm either humans wildlife or plant life. Perhaps your preferred plan (2) is the best one can hope for.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Beverly M. McLaughlin
Name: First MI Last

4605 Mockingbird Ln.
Street

Bay City Tx. 77414
City State Zip Code

Response to Comments in Letter No. 154

From: Beverly McLaughlin

Comment No.	Response
1	The interdisciplinary team is pleased the commenter feels a thorough analysis has been done. The commenter's desire for limiting effects on humans, wildlife, and plants was included in the content analysis of all comments received.

160

MISSISSIPPI FORESTRY COMMISSION

SOUTHERN HARDWOOD SOUTHERN PINE

August 8, 1988

Mr. Bud Braddock, Supervisor
USDA Forest Service, National Forest Mississippi
100 W. Capitol St.
Suite 1141
Jackson, MS 39269

Dear Bud:

1 My staff and I have reviewed the E.I.S. statement on vegetation management in the coastal plain/piedmont. It is a well prepared and written document. We in the Commmission believe this information will be useful in helping to captilize on the benefits of herbicides in a safe, acceptable manner. Please consider this letter as our endorsement of this draft statement.

Sincerely,

Sid Moss

Robert S. "Sid" Moss
State Forester

RSM/ah

RECEIVED
[illegible]
NATIONAL FORESTS IN MISSISSIPPI
JACKSON, MISSISSIPPI

301 N. Lamar St. • Suite 300 • Jackson, Mississippi 39201-1402 • Telephone (601) 359-1386

Response to Comments in Letter No. 160

From: Sid Moss

Comment No.	Response
1	The interdisciplinary team is pleased the commenter feels the Draft EIS is well written and well prepared. The commenter's concerns about recognition of benefits of herbicide use and providing for safe use have been included in the content analysis of all comments received.

TEXAS FOREST SERVICE

The Texas A&M University System

Forest Resource Development Department

(409) 845-2641 *College Station, Texas 77843-2136*

5.7

August 18, 1988

Mr. Steve McCorquodale
Leader, Vegetative Management EIS Team
U.S. Forest Service
1720 Peachtree Road, N.W.
Atlanta, GA 30367-9102

Dear Steve:

I want to compliment you and the other team members on a very thorough analysis of alternatives for vegetative management in the south's coastal forest region and the environmental consequences of each.

1 The herbicide risk assessment was badly needed to answer the health concerns we have in regard to human, fish and wildlife. The assessment was thorough and objective. It provided accurate information vital to everyone in the forestry community involved with programs that use these herbicides.

The objective comparisons of trade-offs, both economic and environmental, associated with all the alternatives was well done.

Thank you for the opportunity to review the EIS Draft document Vegetative Management in the Coastal Plain/Piedmont.

Sincerely,

Bruce R. Miles
State Forester

BRM/ms

Needed!

The Forest Resource Agency of Texas

Response to Comments in Letter No. 161

From: Bruce Miles

Comment No.	Response
1	The interdisciplinary team is pleased the commenter feels the analysis is objective and thorough. The commenter's concern for evaluation of human, fish, and wildlife risk was included in the content analysis of all comments received.

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

None specific, but analysis is more than adequate!

Why?

Comments on Alternatives:

Why? See Attachment A

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Richard H. Miller
Name: First MI Last
8010 Hickory Hill Ln.
Street
Huntsville AL 35802
City State Zip Code

ATTACHMENT A

RICHARD H. MILLAR
8010 HICKORY HILL LN SE
HUNTSVILLE AL 35802

8/22/88

Thanks for the opportunity to review your CP/P Vegetation Management DEIS!

First, a general comment on Public Involvement (I-4). As a reviewer it struck me as rather odd that out of 11,000 interested parties you asked to identify issues, only about 8% responded. Could it be the other 92% became dis-interested along the way, or perhaps felt the Forest Service was adequately handling its responsibilities in this area of forest management? I would like to think the latter, in most cases.

Before commenting on the 8 alternatives, a few observations on Public Issues listed on page v of the Summary:

Balance of Resources - I can understand the concern of those whose primary interests are in non-market outputs, but consider this! As the CP/P Forests in ensuing decades steadily approach their respective MUSY levels, there will be a corresponding increase in non-market outputs.

Prescribed Fire - This management tool is an absolute necessity on most CP/P Forests. With over 40 years of prescribed burning experience behind it, the Forest Service has developed the necessary expertise to conduct successful burning programs for a variety of purposes.

Health & Safety - This is one "people concern" that has always ranked at the top in the Forest Service organization.

Plant & Animal Diversity - Losses can occur under a dynamic forest and land management program; but these are of a temporary nature in many instances, whether by man's action or natural causes. Where permanent loss seems certain, action under the Endangered Species Act may be necessary.

RESPONSE FORM

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Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

None specific, but analysis is more than adequate!

Why?

Comments on Alternatives:

Why? See Attachment A

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Richard H. Miller
Name: First MI Last
8010 Hickory Hill Ln.
Street
Huntsville AL 35802
City State Zip Code

ATTACHMENT A

RICHARD H. MILLAR
8010 HICKORY HILL LN SE
HUNTSVILLE AL 35802

8/22/88

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Plant & Animal Diversity - Losses can occur under a dynamic forest and land management program; but these are of a temporary nature, in many instances, whether by man's action or natural causes. Where permanent loss seems certain, action under the Endangered Species Act may be necessary.

3]

Communications - An eternal problem. The Forest Service has lots of work to do in this field. Examples: Excerpting pertinent facts out of this EIS, couched in language most forest visitors can understand (avoid technical jargon). More visuals of the work ("before and after" shots help) Field trips for the unconvinced and the doubters to view and discuss the work.

Costs - Few would argue that "Desired results at least cost" isn't a worthy goal. However in situations where employment opportunities are limited, least cost methods may have to be tempered somewhat.

Soil Productivity - Truly an important concern. Fortunately vegetation management methods normally are applied in widely-dispersed locations throughout the Forests. They are further limited as to size and frequency of treatment. Mitigation measures can be applied if and when needed.

Water Quality - The two principal vegetation management methods - prescribed fire and herbicide application -- normally are applied in dispersed locations, and limited as to size of treatment area and frequency of treatment. Hence the impact on water quality in the CP Forests is relatively minor. The need for greater caution on the eroded soils in the Piedmont units is recognized.

Herbicides - Their use is a legitimate concern of folks who are unfamiliar with the frequency and extent of herbicide use on CP/P Forests, and the methods and safeguards employed. There appears to be a public education need here; especially in connection with aerial herbicide application.

Here are my comments on the eight alternatives after reviewing them carefully:

In my opinion Alternative A is completely unacceptable on the CP/P National Forests. (Comment doesn't apply to the

3]

so-called Wilderness Areas of course)

I would oppose Alternatives B & C because both would prevent achievement of Forest Land and Resource Management Plan Goals and objectives.

Alternative D had appeal, but ruling out the use of herbicides would remove an important management tool and, indirectly, could contribute to greater accidental injury

Alternative E has merit, but a reduction in managed outputs isn't the way to go. The Alternative also calls for an acreage reduction in herbicide use.

Initially I leaned heavy to Alternative F, but after further thought decided the high program costs, risk of potential loss of cultural resources and soil productivity, made its selection less attractive.

Alternative H was rejected because of its pronounced undesirable effects on soils, sediment production, visual quality objectives, and non-market outputs.

For the above reasons I support your choice of Alternative G as the preferred alternative. Your proposal
1 to use aerial application of herbicides under certain conditions could raise fresh concerns from those opposed. You state use is planned primarily on rights-of-way, and to a lesser extent on site prep, and I can go with that. Even so, water contamination must be avoided, as well as persons on adjacent private lands with their farm crops, gardens, and orchards.

Here's my final comment on the program. Let's call it "Keeping Vegetation Management in Perspective" In the last
2 # on page IV 47 and the first # on page IV 48, you have captured the essence of this perspective. Why not highlight it up front instead of burying it in the text?

Response to Comments in Letter No. 165

From: Richard H. Millar

Comment No.	Response
1	Comments noted. Several mitigation measures and management requirements in chapter II are aimed at ensuring that aerial application is used responsibly and that adverse impacts are avoided. Especially see mitigation number 1 on page II-35, number 5 on pages II-48 and 49, and numbers 25, 27, and 28 on page II-53 of the Draft EIS.
2	Comment noted. We feel that the most appropriate place for this discussion is in the environmental effects section on wildlife in chapter IV of the Draft and Final EIS.

4)

Criticisms of National Forest land and resource management usually result from on-the-ground viewing of a specific treatment. What the viewer doesn't understand is how this treatment forms but a tiny part of the total over-all management area picture. Too often there are no visuals to show him or her how it fits in. Over and over again, emphasis has to be on the WHY of:

Dispersion of treatments
Controlling area of treatment
Frequency of treatments
And so on

These actions not only represent good management control but equally important, greatly dilute any possible adverse environmental impact, whether temporary or of longer duration.

If you read this all the way through, thanks for your patience!

RAM

166

130-C Huggins Road
Lafayette, LA 70506
August 23, 1988

U S Dept of Agriculture
Forest Service
Coastal Plain/Piedmont Division

Dear Sir,

I am stating my opinion against the use of herbicides in Kisatchie National Forest I wish your agency will adopt Alternative A for no
1 action. The use of herbicides for eliminating vegetation will contribute greatly to soil erosion and permit runoff and leaching of the chemicals into surface and ground
2 water. Other alternatives containing low risks in this area may also be considered Biological controls such as the present use of hand cutting or futuristic use of goats should also be at least attempted.

Response to Comments in Letter No. 166

From: Eric T. Yocum

Comment No.	Response
1	The commenter's preference for alternative A, due to concerns about soil erosion and ground water impacts from herbicide use, was included in the content analysis of all comments received. For soil and water concerns, see responses to comments in Letter No. 70, Comment No. 3; and Letter No. 6, Comment No. 1.
2	All alternatives, except A, and modified G (which excludes biological) provide the decision maker with various levels of manual and biological treatments. See table II-5 on page II-62 of the Draft EIS and table for a comparison of projected acres treated by method by alternative.

This new program is designed to minimize short term costs for the logging industry without fully understanding the long term effects on the environment and for wildlife.

Sincerely,
Eric T. Yorum

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SIERRA CLUB

LONE STAR CHAPTER
WILDERNESS & FOREST PRACTICES
1401 19th Street
Huntsville, Texas 77340

August 18, 1988

USDA Forest Service
Attn: Room 362S
1720 Peachtree Rd. NW
Atlanta, Ga. 30367

REF: COMMENTS OF LONE STAR CHAPTER SIERRA CLUB re DEIS
VEGETATION MANAGEMENT IN THE COASTAL PLAIN/PIEDMONT

Scientific Analysis:

1. Scientifically the DEIS is deeply flawed, as set forth in the comments of Drs. N. L. Fowler and W. J. Platt, attached hereto and made a part hereof.

1 (a) It addresses plant species as if they involve only a few categories, one of which covers all herbacious species, (b) it is outmoded, particularly in its concept of succession; (c) it lacks scientifically based information, especially about the longterm consequences of management techniques; (d) it fails to consider the grasslands separately.

Alternatives:

2. We favor an alternative not listed. It is (a) to virtually eliminate site preparation, and (b) to limit vegetation management 2 to that frequency and seasonality of prescribed burning that replicates fire before the influence of humankind, as best determined by scientists, (c) to change from even-age to selection management so that site preparation is seldom, if ever needed for regeneration after harvesting.

Our alternative is somewhere between your A and B

3. The DEIS understates soil and nutrient losses from shearing and associated methods of site preparation.

3 Lone Star Chapter Sierra Club incorporates by reference its adopted Reply to Responsive Statement of Regional Forester and Request for Stay in its Appeal from EIS and LRMP, National Forests in Texas, dated July 26, 1988, particularly the following paragraphs 2017-3 and 4, 2017-5, 2017-11, 2017-54, 2017-85, 2017-86, 2017-87, 2017-88, 2017-89, 2017-90, 2017-91 through 94, all Additional Evidence listed under Part D, and the statement of Jerry Williams attached thereto by supplement.

"When we try to pick out anything by itself, we find it hitched to everything else in the univers[illegible]

Response to Comments in Letter No. 167

From: George Russell

Comment No.	Response
1	See responses to your concerns as follows: Concern 1a - See response to comment 10 in this letter. Concern 1b - See response to comment 19 in this letter. Concern 1c - See response to comment 12 in this letter. Concern 1d - See response to comment 21 in this letter.
2	Alternatives A, B, and C all have components of your points 2a and 2b. As for 2c, each Forest Land and Resource Management Plan discusses which silvicultural system and associated harvest cutting methods are appropriate, and where they are to be used, based on each forest's unique mixture of forest resources and public needs. As stated on pages I-6 and I-7 of the Draft EIS, the issue of silvicultural systems is outside the scope of this EIS. However, all of the methods and tools analyzed in this EIS are applicable and available for use, as specified by each alternative, regardless of the silvicultural system or associated harvest cutting methods identified in Forest Land and Resource Management Plans. It is incorrect to assume that under the uneven-aged silvicultural system that regeneration areas would have less site preparation following harvest than would regeneration areas under the even-aged silvicultural system. For either the even-aged or uneven-aged silvicultural system, site-specific analysis will determine appropriate methods and tools, intensity and selectivity of application, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. For example, vegetation management projects, with the objective of establishing the regeneration of a new age class, are designed to reduce plant competition, so that pine and/or hardwood seedlings receive needed amounts of sunlight, water, nutrients, and growing space in order to survive and grow, in both even-aged and uneven-aged systems.
3	Shearing alone causes minimal soil and nutrient loss. Effects are significant only if it is followed by piling or raking. Only raking seriously impairs long-term soil productivity, mostly by displacing organic matter and nutrients offsite (pages IV-76, 79-82 of the Draft EIS). Raking is allowed only in alternatives F and H.

DEIS COMMENTS PAGE 2

Other:

4. The DEIS is fundamentally skewed by assuming that even-age management, predominantly clearcutting, will be the silvicultural system. This assumption means that site preparation and planting will be extensive or pervasive, necessitating wholesale vegetation management that would be vastly reduced under selection management.

4

5. Early in the scoping process, Lone Star Chapter Sierra Club and others urged that the silvicultural management system be included in the EIS process, and we continue to urge this. We incorporate TCONR's scoping comments herein by reference. The silvicultural change is especially relevant in the light of the finding of the U.S. District Court on June 17, 1988 in Sierra Club et al v. Lyng, et al, in USDC, ED Texas, Tyler, L-85-69-CA, incorporated herein by reference, where the court orders the adoption of selection management in all protective zones of the Red-cockaded woodpecker.

5

6. Clearcutting leads to site preparation (generally bulldozing in the South). To confront the issues of site preparation intelligently, you have to consider the option of shifting from clearcutting to selection management, which can produce the same volume of timber by natural regeneration, without the costs and losses involved in site preparation.

6

When the Forest Service set up its decision process on site preparation, but refused to reconsider reducing its clearcutting, it put the cart before the horse. It was as ridiculous as if a health agency decided on a rehabilitation program for alcoholics without including abstinence. It was as short-sighted as a family would be if, when its car was totally wrecked, it decided what repairs it wanted to make without considering buying another car, instead.

7. The Forest Service may claim that it considered the alternative of selection management years ago when it revised its Forest Plans. There are three fallacies in that claim:

(a) The Forest Plans were biased for dominant clearcutting.

(b) Their decision to continue dominant even-age management needs to be reconsidered in the light of recent developments: soil studies, cost analyses, findings of success of selection management in private forests and at Crossett, Arkansas; citizen input in numerous administrative appeals and findings by impartial tribunals in lawsuits. We hereby incorporate by reference "Review of Critical References, Appendix J, Final Land and Resources Management Plan National Forests & Grasslands, October 1987" submitted to the US Forest Service by Texas Department of Agriculture, Jan-Feb 88. We also incorporate by reference, "The Forest and the Trees, A Guide to Excellent Forestry" by Gordon Robinson, Island Press, 1988, and all references therein.

4 The Draft EIS on page II-11 states that the analysis is not affected by selection of harvest cutting methods. Please also see response to comment 2 of this letter.

5 See reponse to comment 2 of this letter. Also see pages I-6 and 7 of the Draft EIS. Mitigation measure number 2 on pages II-36 and 37 of the Draft EIS provides for threatened, endangered, proposed, and sensitive species protection.

6 See response to comment 2 of this letter; and to Letter No 152, Comment No. 10.

(c) Since clearcutting and site preparation are intertwined, it is narrow-minded and cost-inefficient to decide among methods of vegetation management when the losses and costs resulting from all methods may be so great as to warrant shifting from even-age to selection management, and therby virtually eliminating the costs and damages involved in site preparation and planting.

8. The DEIS is fundamentally flawed in failing to address realistically the impact of continued site preparation, pine planting, and favoring in subsequent management practices on susceptibility to
7 insects and diseases, particularly the Southern pine beetle. Lone Star Chapter Sierra Club incorporates herein by reference a Forest Service study remarkable omitted from the DEIS: Managing the Southern Forests to Reduce Southern Pine Beetle Impact, USDA Forest Service, Southern Region, May, 1986. This study concludes (p. iii): "Increased density is thought to be an important contributing factor in the current outbreat." It recommends (p. iv) reducing the acreage in mature and over-mature pine stands. In the light of recent studies it should say all pine stands.

9. The DEIS is so fatally defective in its blatantly arbitrary and capricious selection of data to attempt to support a destructive
8 and irresponsible system of forest management based largely on excessive clearcutting and resulting pesticide, herbicide, fire, and bulldozing use to the point of abuse, that we feel the entire DEIS to lack objective credibility in light of NEPA, NFMA, and the Endangered Species Act requirements.

9 10. Lone Star Chapter Sierra Club incorporates herein by reference the Comments of Brandt Mannchen on this DEIS, dated August 8, 1988.

George H. Russell, Chairman
Forest Practices

GHR/bhs
Enclosure
cc: Alma Burnam
Jerry Akers
Brandt Mannchen

7 "Increased density" as used in the cited sentence refers to inappropriately managed stands in which stagnation, or at least growth reduction, had occurred due to high stocking levels. Good silvicultural decisions which should eliminate such problems are made at the forest level, and are outside the scope of this EIS. In addition, mitigation measure number 4 on page II-38 of the Draft EIS will prevent stands from becoming overstocked.

8 See response to comments in Letter No. 73, Comment No. 12.

9 See all responses to comments in Letter No. 73.

THE DEPARTMENT OF BOTANY
THE UNIVERSITY OF TEXAS AT AUSTIN

Austin, Texas 78713-7640 · Phone (512) 471-5858

COMMENTS on the DRAFT EIS: VEGETATION MANAGEMENT

IN THE COASTAL PLAIN/PIEDMONT

N. L. Fowler and W. J. Platt

The goal of the EIS is to consider the consequences of various vegetation management techniques. The effects of these techniques on vegetation are one of the specified subjects to be considered. The draft EIS does not do this adequately. The primary reasons are:

10 (1) a simplistic lumping together of plant species into a few categories, especially the lumping together of all herbaceous species;

11 (2) simplistic and scientifically outmoded concepts of the ecology of southeastern habitats, especially in the coastal plain, and particularly the anachronistic model of succession;

12 (3) a lack of scientifically based information, especially about the long-term consequences of management techniques;

13 (4) the failure to consider the grasslands separately.

14 There is no simple solution for the lack of information. To the list of 'Research Needs' (pp IV 129-130) should be added "Long-term effects of herbicides and mechanical site preparation techniques on plant community composition."

15 The category of herbaceous (non-woody) plants includes a wide variety of different types of plants. Weeds such as ragweed and broomsedge are found primarily in old-fields and other highly disturbed habitats. (The term weeds is used throughout to refer to plant species characteristc of early successional vegetation, that is, colonizing species.) Different herbaceous species are found in forests. Some of these are found in recently planted stands. Other herbaceous species, such as wiregrass and many
16 orchids, are characteristic of undisturbed vegetation in or near to its presettlement condition. In general, weedy plants are now abundant, while herbaceous species characteristic of presettlement vegetation are now rare. The DEIS does not distinguish between these categories. Statements like "treatments (or lack of treatments) favoring woody vegetation will negatively affect herbaceous vegetation, and conversely" (p. II-63) are common in the DEIS. In fact, the DEIS does not go beyond the statment just quoted in its assessment of the consequences of various management techniques for herbaceous plants.

10 For some purposes the herbaceous (non-woody) plant - woody plant dichotomy is adequate and useful. The terminology is commonly used in literature and is easily understood by the public and decisionmakers. We recognize that these are diverse groupings containing species with various life history strategies, and have revised the Final EIS to indicate that with such differences species respond differently to management manipulations. In particular see discussion of succession on pages IV-40 and IV-45 of the Final EIS. Chapter IV of the Draft EIS describes some of the different treatment effects that occur within each class. For example, see page IV-36, last paragraph; and page IV-37, 1st paragraph. In the Glossary of the Final EIS we expand the definitions of these two categories.

11 See response to Comment No. 19 of this letter.

12 Where long-term studies are available we have included them: for example, see page IV-36, last paragraph; IV-40, 1st and 4th paragraphs; and page IV-41, 2nd paragraph of the Draft EIS. Where there is a lack of long-term studies, we have recognized the need for additional research on pages IV-129-130 of the Draft EIS.

13 See response to Comment No. 21 of this letter.

14 Research need number 8 on page IV-130 of the Draft EIS reflects this concern; however, in the Final EIS this statement has been clarified and specifically includes mechanical tools and herbicide use.

15 See response to Comment No. 10 of this letter.

16 The EIS has been modified to recognize the life history variations among herbaceous species, and the consequential variations in response to management tools (pages IV-40 and IV-45 of the Final EIS). The possibility of irreversibly altering native plant communities is now disclosed (pages IV-146-147 of the Final EIS).

For herbicide effects, see response to comments in Letter No. 97, Comment No. 2. Some herbaceous species are favored by mechanical soil disturbing activities while other herbaceous and many woody species are not as tolerant of these activities. As indicated on page II-37 of the Draft EIS, this is dependent upon the type of mechanical tool and species characteristics such as sprouting capacity and amount of rootstocks affected by a treatment.

We have recognized the role and effects of fire in these forests, as indicated on pages III-11 and 12, and IV-30 to IV-37 of the Draft EIS. Mitigation measures, such as number 1 on page II-35 and 36, numbers 15 and 17 on page II-41, numbers 1 and 2 on page II-43, and number 12 on page II-45 of the Draft EIS are specifically designed to evaluate site-specific effects, promote a variety of overstory and understory vegetation, and protect those species susceptible to fire damage within these forests.

None of the herbicides are species-specific, as the DEIS recognizes. (There is one exception: some don't kill grasses.) Any plants exposed will be damaged or killed. All but the most careful, selective herbicide application methods will kill many/most/all herbaceous plants in a site. The effects of mechanical preparation on herbaceous plants will be roughly proportional to the level of soil disturbance (pp. II-15-16). Many weedy species can survive soil disturbance; many or most non-weedy species cannot. Plants of the pine savannas and Texas grasslands have evolved with fire and are extremely fire resistant; plants of the bottomland forests and other hardwood forests have not, and will be seriously damaged or killed by fire just as the trees in these forests will be. The herbaceous plants that recolonize a site after site preparation or other disturbance ARE NOT THE SAME SPECIES as those that were there before, unless the site was already extremely disturbed.

17 Therefore, the methods of vegetation management described in the EIS, especially herbicide use and the more intense mechanical tools (and fire in hardwood forests) will tend to eliminate those herbaceous species characteristic of undisturbed vegetaion and substitute weedy species in their place. For example, wiregrass was a dominant species in pre-settlement pine savannas (Fig III-2). But you can drive for miles in northern Florida and not find it, because it does not return to formerly plowed fields. It therefore seems very likely that wiregrass will be lost, and not return, to sites that have undergone intensive site preparation. A second example is Aristolochia reticulata, a species of the east Texas pine forests (Fowler and Rausher 1986). This species sets its seeds at the ground surface (or just under it) and has no apparent mechanism of seed dispersal to colonize new sites. Like most herbaceous species in these sites, it is extremely fire-resistant, but will not survive being dug up (e.g., disking) or herbicides. If it is lost, its specialist insect herbivore, the black pipevine swallowtail (Battus philenor), will be lost too.

18 The number of weedy species that grow in areas that had previously received site-preparation or other intensive disturbance is much less than the number that grow in nearby undisturbed vegetation. In other words, mechanical site-preparation, herbicide use, and (in hardwood forests only) fire will reduce the diversity of a community as well as altering its composition. For example Platt et al. (in press) reported 123 and 163 species (excluding tree species) in two logged but otherwise relatively undisturbed coastal plain sites whereas Gilliam and Christensen (1986) reported only 37-66 species (including tree species) in similar, but highly disturbed, sites.

17 **The concern with decreasing species of mature communities on a landscape or regional scale is important. As noted above we acknowledge the potential loss of presettlement vegetation types following certain treatment (intense mechanical treatment, in particular). In this EIS we have tried to provide information about treatment effects on individual sites. Planners and decision-makers at the District and Forest levels will apply the information to the maintenance of diversity, especially with regard to sensitive species and sensitive communities. Mitigation measure number 1 (Draft EIS, page II-35) recognizes the requirement for managing to maintain biological diversity. See discussion of Aristida stricta in Letter No. 75, Comment No. 1.**

18 **We agree that vegetation management activities alter species composition, and have displayed this in chapter IV of the Draft EIS. For the effects on species composition specifically for prescribed fire and mechanical tools, see pages IV-35 to 37 and IV-40 to 41 of the Draft EIS. It is difficult to assess of impacts to community diversity. With respect to your example, without benefit of being able to review the Platt et al. study (in press), we fail to see how we can adequately compare a study of logged sites with the Gilliam and Christenson (1986) study (overstory not removed) which compared seasonal differences in post-burn soil nutrients available in a shady area that had not been disturbed for ten years prior to the initiation of their study. For some examples of studies that directly assess the impacts of various intensities of disturbances see: Swindel, B. F.; Conde, L. F.; Smith, J. E. (1986); Moore, W. H.; Swindel, B. F.; Conde, L. F.; Swindel, B. F.; Smith, J. E. (1983b); and Stransky, J. J.; Huntley, J. C.; Risner, W. J. (1986); all referenced in the Draft EIS.**

N. Fowler & W. Platt

19 The DEIS uses the model of a linear successional sequence, leading from pine to hardwood. This is accurate for some areas, especially in the Piedmont. In these areas, converting hardwood forests into pine forests means a loss of many species that are characteristic of mature hardwood forests. Not all herbaceous species can tolerate early, or even mid successional stages; some need the shade and moisture found under a mature hardwood canopy.

The simple successional model treats the longleaf pine savannas as if they were comparable to a loblolly pine stand in the Piedmont. The latter is a temporary successional stage that was probably extremely rare before settlement; the former was the dominant vegetation type in most of the lower Coastal Plain before settlement, and was maintained by fire. These longleaf pine savannas, and other areas whose presettlement vegetation was pine savanna, had a rich native vegetation that included many orchids and other wildflowers. Theoretically they could have undergone succession to hardwood; they never did. To classify them as merely a successional stage is very misleading: they have, or had, the diverse, disturbance-intolerant plant species of a typical "climax" vegetation formation. Fire is not a disturbance in these savannas, any more than winter is in Michigan. The adaptions of the pines and other plants native to the pine savannas indicate that these vegetation types burned frequently and that some of the species, including longleaf pine and wiregrass (Platt et al. 1988) themselves promoted very freqent fires.

The DEIS implicitly assumes that succession is a simple linear process that proceeds inexorably to a fixed endpoint. Current ecological thought recognizes that this is an overly simplistic model. Among other problems, it fails to recognize that an ecosystem perturbed beyond a certain point will not return to its former equilibrium condition. In the context of the DEIS, this is the failure to recognize that A FOREST PERTURBED TOO SEVERLY BY INTENSIVE SITE PREPARATION MAY NEVER RETURN TO ITS FORMER CONDITION: most species, once lost, will never return to the site. Site preparation of the sort described in the DEIS does not just "set back" the "successional clock"; it "discards" forever many of the components of the original vegetation.

To summarize, the management techniques described in the DEIS, especially herbicides (except perhaps the most selective applications) and the more intensive mechanical site preparation methods (and fire for herbaceous species of hardwood forests), will likely have major effects on herbaceous species that are not recognized in the DEIS. The ground cover of the pine savannas is particularly vulnerable. Weedy species will replace species

19 We have modified comments on succession (Final EIS, pages IV-40 and IV-45) to reflect some of the variations in successional patterns. We do not mean to imply any given endpoint or climax community in our use of the term "succession." It is simply used to refer to directional, predictable changes in vegetation through time. We recognize the variation of successional patterns associated with initial conditions and with type of disturbances, and do not adhere strictly to the linear progression with inevitable climax community as you suggest we do. We do accept the possibility that communities may be disturbed to such a degree that recovery to presettlement conditions may never occur, and have modified the Final EIS to disclose that possibility (page IV-47). The impacts that such losses might have on biological diversity at the landscape level must be evaluated in the planning processes within each Forest.

characteristic of undisturbed vegetation, because the latter (1) are intolerant of disturbance, (2) are poor colonizers, and (3) need the environmental conditions found in undisturbed vegetation. "Undisturbed vegetation", as used here, includes the longleaf pine savannas, as well as mature hardwood forests; the phrase is essentially equivalent to "presettlement vegetation" but also includes stands that have recovered from earlier (mild) disturbance. It is most important to recognize that intensive disturbance will not initiate a successional sequence that will result in eventual re-establishment of "undisturbed vegetation."

We have discussed herbaceous species. Everything we have said applies to shrubs, vines, and other small woody species too. The DEIS does mention the effects of management techniques on some shrub species, in the context of controlling them. Like the herbaceous species, the less tolerant of soil disturbance a shrub species is and the more slowly it can recolonize, and (for species of bottomland and other hardwood forests) the more need it has for a hardwood canopy, the more likely it is to be seriously affected by vegetation management. Here again, herbicides and the more intense mechanical site preparation methods (and fire for hardwood forest species) are likely to have the most negative impact.

In general, as plant species are lost, so are animal species. However, the DEIS considers only a few bird and mammal species, all of which (except the endangered species) are quite tolerant of disturbance and thrive in disturbed vegetation. Therefore the effects of vegetation management on terrestrial animals (including insects, etc.) will probably be much more severe than predicted (Repenning and Labisky 1985).

20 Another deficiency of the DEIS is the omission of many species from the list of "sensitive species". In Texas the Natural Heritage Program is currently working with the Forest Service to develop a list of sensitive species (S. Orzell, pers. comm.) This DEIS should be worded so as to recognize that the list of sensitive species given in the DEIS is incomplete.

21 Finally, the DEIS almost ignores the two National Grasslands in Texas. Which of the management methods will be used there? What will the effects on the vegetation, soil, water quality, etc. be? Because the vegetation of these areas is so different, it is impossible to tell from the DEIS what the environmental impacts of vegetation management will be there.

22 For all of the reasons just outlined, the various vegetation management methods will have effects on plants and animals that are not considered in the DEIS. These effects are potentially extremely serious. They are likely to lead to a serious loss of

20 These lists have been updated since the Draft EIS. Species identified in appendix E in the Final EIS reflect the most current status of threatened, endangered, and proposed species as designated by the U. S. Fish and Wildlife Service in the Federal Register which are known to occur on national forest lands in Texas. Species known to occur on national forest lands in Texas which are identified by the Forest Service as sensitive also are shown. As the National Forests in Texas update their list of sensitive species based on coordination with the Texas Natural Heritage Agency, this appendix will be updated.

Appendix D of the Final EIS has been reworded to explain the process for designating sensitive species.

21 The two National Grasslands in Texas are part of the Coastal Plain physiographic division as defined on pages III-1 and 2 of the Draft EIS and are analyzed as such. The alternatives were developed with full consideration of these areas. The choice of method and tools available will be limited to those available in the selected alternative (see table II-4 on page II-60 and 61 of the Draft EIS for a comparison of tools by alternative). Where scientific research is available for these areas, it has been included. For some examples of effects specifically to grasslands see pages IV-36, 74, 75, 90-96 and Appendix B, pages 3, 4, 14, 16, and 22 of the Draft EIS. Much of the research conducted in the Coastal Plain occurs on range lands which have similar woody and herbaceous species, animal species, soil types, etc. to the grasslands in Texas. Responses from equivalent treatments are estimated to be similar.

22 See Comment No. 19 of this letter.

biological diversity. We can expect many more species to become "sensitive" if these intensive management methods are used in the future.

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August 22, 1988

Mr. John E. Alcock
Regional Forester
USDA Forest Service
Southern Region
1720 Peachtree Rd., NW
Atlanta, GA 30367

RE: Draft Environmental Impact Statement (DEIS) for Vegetation Management

Dear Mr. Alcock:

The Florida Game and Fresh Water Fish Commission has reviewed this DEIS with regard to the fish and wildlife resources of Florida.

The DEIS presents eight alternatives for managing the vegetation of the national forests within the Coastal Plain and Piedmont. These management alternatives range from alternative A which has no management of vegetation to alternative H which has extremely intensive vegetation management (DEIS pp. II-2-10). The vegetation management techniques discussed involve the use of herbicides, mechanical methods, prescribed fire, manual methods and biological methods (grazing).

Prescribed fire is currently the most widely used vegetation management technique in these national forests. Fuel loads, weather conditions and firing techniques dictate the intensity of the fire and the fire's effect on vegetation. The pine flatwoods, sandhills, cypress swamps, pitcher plant bogs and several other plant communities of the Coastal Plain are adapted to frequent fires. If fire is excluded hardwoods and shrubs overtake these communities. Hardwood encroachment around red-cockaded woodpecker (threatened-state, endangered-federal) cavity trees can cause these trees to be abandoned. Regular, prescribed burns (every 2 to 3 years) burn back these hardwoods. Prescribed burns also increase the browse production and improve the palatability and nutritional quality of the plants browsed by white-tailed deer (Hurst and Warren 1981). Gopher tortoise and indigo snake densities are reported to

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be highest on regularly burned sandhill areas (Auffenberg and Franz 1978, Landers and Speake 1980).

Growing season or summer prescribed burns enhance the habitat of a number of species of wildlife in the Coastal Plain. Regular, growing season burns in pine flatwoods set back saw palmetto and other shrubs, opening up the woods for bobwhite quail and wild turkey. Summer burns create bare, mineral soil conditions that longleaf pines need in order to germinate in the late fall and winter (Croker and Boyer 1975). Longleaf pine cones also provide forage for fox squirrels and other wildlife. Summer burns promote the germination of wire grass and native forbs which provide forage for numerous species of game and nongame wildlife.

Pitcher plant bogs rely on fire to burn back encroaching woody shrubs and trees. Prescribed head fires may be used to set back the encroachment of titi (Cyrillacae) into upland pine flatwoods. Light or moderate fires maintain mixed hardwood swamps and cypress-gum swamps whereas more severe fires may set back the succession of these swamps to cypress swamps, shrub swamps or marshes, depending on the intensity of the fire and substrate of the swamps (Hamilton 1984). Prescribed burns may be used to maintain the mosaic of upland and wetland habitats in the national forests of the Coastal Plain. This habitat mosaic is important to Florida black bear, wild turkey, bobcat, many songbirds and numerous other species of wildlife.

1 Although the DEIS states that the risk to wildlife from herbicide applications appears to be low, little is actually known about their effects on most species. Of particular concern are the effects of herbicides on amphibians, especially their eggs and larval forms. None of the proposed herbicides appear to have been tested on amphibians. We are concerned about the negative impacts of herbicides on sensitive amphibians, such as the gopher frog (Species of Special Concern) and
2 flatwoods salamander. The proposed 30-foot buffer for ground applied herbicides and 100-foot buffer for aerially sprayed herbicides around lakes, wetlands and streams does not appear to provide adequate protection for egg and larval amphibians and aquatic organisms. Aerial
3 and broadcast application of herbicides poses a greater risk to fish and wildlife habitat than does spot application of herbicides.

4 We are also concerned with the potential impact of herbicides on native plant communities within the Coastal Plain. The National Forests of Florida have a number of native plants such as runner oak, live oak, turkey oak, dogwood and blueberry which provide forage for a number of species of wildlife. The aerial spraying and general broadcast of herbicides could seriously impact these woody plants. For example, if runner oak is killed by herbicide application, its resprouting potential
5 is unknown. The DEIS does not adequately address the long-term effects of herbicides on plants and plant communities. Certain herbicides with longer active lives such as Hexazinone, which is active for at least six

Response to Comments in Letter No. 168

From: Allen Egbert

Comment No.	Response
1	See response to comments in Letter No. 150, Comments No. 20.
2	See response to comments in Letter No. 70, Comments No. 3. Risk of herbicide entry to water increases from selective to broadcast to aerial, but only aerial poses significant risk of polluting some streams. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.
3	By virtue of having a helicopter overfly streams and other open water bodies or wetlands, we do slightly increase the risk of accidental contamination of fish habitat. Broadcast application of herbicides (whether aerial or ground application) pose greater risk to wildlife than does a selective treatment. However, with mitigations (required in chapter II) in place, neither fish nor wildlife were exposed to risks which exceeded the EPA standards.
4	Temporary, localized disruptions of some woody communities could be expected as a result of broadcast application of herbicides. Permanent shifts are not reasonably foreseen. Prior to any vegetation management treatment, projects will undergo site-specific analysis (mitigation measure number 1 on page II-35 of the Draft EIS) which determines appropriate methods and tools, intensity and selectivity of applications, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. This includes the examination and evaluation of a reasonable range of alternative methods, including the use of methods which do not involve herbicides.

months, and Tebuthiuron, which remains active for 1-5 years, should be avoided on the natural forests.

Some of the mechanical vegetation control methods proposed for use on the national forests are chopping, mowing, shearing, ripping, scarifying, bedding, raking and disking. Intensive site preparation, which uses mechanical means to rake, disc, shear and bed pine flatwoods or other native pine-dominated sites in order to plant pine trees, destroys many of the native plants on the ground and in the understory. This intensive site preparation causes native forbs and grasses to be replaced by weedy plants and thick growths of shrubs and saw palmettos. Intensive site preparation reduces the species diversity and richness of the native plant communities of the Coastal Plain. These intensive site preparation techniques reduce the forage available to and lower the habitat quality for important game species such as wild turkey and bobwhite quail. The native groundcover is also important for songbirds and other wildlife.

Manual and biological (grazing) methods of vegetation control generally have a positive benefit to wildlife and its habitat if used correctly. The selective cutting of pines and hardwoods can increase production of understory forbs and grasses which benefit wildlife. Controlled grazing in conjuction with regular, prescribed burns generally benefits the native wildlife in flatwoods and other fire-climax native communities of the Coastal Plain.

6 The DEIS does not clearly state what criteria were used to determine whether or not vegetation management activities affect the listed and sensitive wildlife and fish species in Tables III-5 and III-7. The gopher frog (Species of Special Concern) which breeds in ephemeral wetlands and lives in the surrounding sandhills would be potentially impacted by any use of mechanical site preparation or use of herbicides in the sandhills. Table III-7 incorrectly indicates that vegetation
7 management without mitigation will not affect the gopher frog. The DEIS needs to provide further analysis of the effects of different types of vegetation management on sensitive wildlife and fish.

Table IV-18 (p. IV-109, DEIS) indicates that prescribed burning, which costs from $3.58 to $5.66 per acre in the Coastal Plain, is by far the most cost effective method of vegetation management. The other methods are far more costly with herbicides costing $50.00 to $88.00 per acre, manual techniques costing $59.51 to $90.52 per acre, and mechanical management costing $42.12 to $159.20 per acre. Prescribed burning is not only the most economical, but is also the most ecologically sound method of managing vegetation in the National Forests of the Coastal Plain.

Compared to the present vegetation management, none of the alternatives in the DEIS decrease the use of herbicides and mechanical treatments while increasing the amount of fire, manual and biological

Additionally, recognizing the potential risks from broadcast (ground or aerial) application of herbicides our emphasis is placed on selective use of carefully chosen herbicides (mitigation measures numbers 5 and 6 on pages II-48-49 of the Draft EIS). Mitigation measure number 5 on page II-48 further directs that preference be given to those herbicide application methods which affect the minimum amount of vegetation while meeting project objectives. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. With the exception of roadside and utility corridor maintenance, a major part of all forest herbicide application is already done selectively and the percentages of selective treatment increases in the preferred alternative in the Final EIS.

5 Tebuthiuron was placed in Class B due to its persistence (page II-33 in the Draft EIS). Mitigation measure number 6 on page II-49 in the Draft EIS restricts the use of tebuthiuron; it requires further project documentation to provide adequate environmental protection. Conditions leading to 6-month persistence of hexazinone are not experienced in Florida, or in the Coastal Plains, generally, and so hexazinone was not further restricted. In the risk assessment, hexazinone is reported to have a half-life of less than 30 days or 1/6 that suggested in the comment.

6 Table III-7 of the Draft EIS has been corrrected to show that these may be a potential for adverse effects on all species if mitigations are not employed; and it has been moved to appendix E in the Final EIS.

7 Appendix ■ of the Draft EIS has been expanded in the Final EIS to show what vegetation management activities have a potential for affecting sensitive species such as the gopher frog.

treatments. Fire and manual methods have the greatest benefit to wildlife and the native plant communities of the Coastal Plain and have the least potential for adverse impacts to fish and wildlife and their habitat. We propose that the U.S. Forest Service consider and adopt an additional alternative, which emphasizes the use of prescribed burning along with manual and biological treatments as needed. In this proposed alternative I, we recommend the use of prescribed burns on between 472,000 acres and 667,000 acres annually, using both dormant season and growing season burns as is practical. We recommend using prescribed burns in pine flatwoods every 2 to 3 years and burning sandhill communities every 3 to 4 years, as fuel loads allow. Regular prescribed burns should be used to set back titi swamp, bogs, savannas and other fire dependent communities. Prescribed fires should be allowed to burn through swamps in order to burn the underbrush and maintain different phases of succession in these communities. In order to avoid impacting the native ground cover, the digging of new fire lanes should be minimized.

8

Under this proposed alternative, we recommend that between 6,000 and 18,000 acres be treated with manual methods annually. Experiments should be conducted on use of biological control of vegetation to determine its impacts on native plants and wildlife habitat. This alternative should recommend limiting the use of herbicides to ground applications, thus avoiding general broadcasting of herbicides. Our recommendation is to limit the acreage on which herbicides are used to not more than 11,500 to 17,000 acres per year. This alternative recommends limiting the use of mechanical methods to those methods which cause little or no soil disturbance such as mowing and shearing. Mechanical methods should be limited to between 12,500 and 25,000 acres annually.

We recommend that the proposed alternative I be adopted by the U.S. Forest Service as the preferred alternative. This alternative will allow the vegetation of the Coastal Plain to be managed in an ecologically sound manner which benefits the fish and wildlife and the plant communities of the national forests.

If you would like a further explanation of our comments or would like other assistance, please contact Mr. Perry Oldenburg at (904)488-6661.

Sincerely,

Allan L. Egbert, Ph.D.
Assistant Executive Director

ALE/PO/kh
ENV 9-1-4
Enclosure

(Continuation of Forest Service response)

8 Alternative I is one of many possible variations on existing (Draft EIS) themes. Alternative I recommends acreages for some methods which are very close to acreages specified in several alternatives evaluted in the Draft EIS (see table II-5). Alternative I achieves effects considered favorable by the commenter but it also has effects on some plant and wildlife species and their habitats which are considered unfavorable by other commenters. Also see response to comments in Letter No. 82, Comment Nos. 4 and 5.

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RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: It is not holistic enough. It does not keep in mind the big picture of over-all environmental management enough. See attached letter, please, for explanation.

Why? I object to any vegetation Management based on most prescibed fire and herbicides. Herbicides, I especially object to as being destructive to endangered species of plants and animals and future unknown effects. Biological methods can also have unknown future effects and have backfired many times on down the line

Comments on Alternatives: Why over manage? Leave the mixture like it has always been. I want my natural heritage left natural. See attached letter, please

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

NANCY K. BIGLANE
Name: First MI Last
4 BINGAMAN LANE
Street
NATCHEZ MS. 39120
City State Zip Code

Nancy Biglane
4 Bivouac Lane
Natchez, MS 39120

Dear USDA Forest Service,
To Whom it May Concern—

For some reason I think that this may fall on deaf ears because it sounds to me like your mind is made up. Scientific Analyses are hard for laymen to argue against. It is the same idea as putting forth the statistics about a nuclear holocaust - predicting the percentages of people who would be dead, injured, and survive on both sides. The scientific analyses would probably be accurate, but why start an unwinnable conflict in the first place? Everyone would lose. What I am saying is that it seems to me like this is a matter of differing objectives. My objective is to keep everything alive, and yours is selective destruction.

My comments on your Scientific Analyses are that you probably spent a lot of money and did an accurate job; however, one-pointed objectives leave out all the plethora of life that lives in our national forests. What about all the endangered and near endangered species of plant, animal, and insect life? What about the effects in the future of chemicals on the water, soil, and air? What about the human mishandling of chemicals? I am definitely against any chemical, herbicidal spraying in the national forests. I am also against controlled burning except for certain problem areas.

To me, national forests should be kept in as pure a natural state as possible with minimum interference to the natural environment for all living things. Herbicides have been a two edged sword, and we still don't know their true future effect. We have reaped greater production benefits but at the cost of heavy pollution and toxicity in the environment that has entered the food chain through animals and plants.

I thought that the original aim and philosophy behind the government maintaining national forests was to conserve and preserve our national heritage in a pristine, next to primeval state, where all living things would be safe from destruction and where future generations could enjoy and see how things were meant to be in nature. To me, too much management and interference is a violation of a national

1

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3

Response to Comments in Letter No. 173

From: Nancy Biglane

Comment No.	Response
1	Impacts of vegetation management on threatened, endangered, proposed, and sensitive plants and animals are discussed in chapter IV, pages IV-69-72 in the Draft EIS; and are also discussed and displayed in appendix D. Mitigation measures in the Draft EIS such as numbers 1 and 2, page II-35-37, numbers 2, 4, and 5 on II-48, number 8 on page II-49-50; are specifically designed to protect threatened, endangered, proposed, or sensitive plant and animal species.
2	There is a risk of mishandling, but this risk has been adequately analyzed under the accident scenario. Prevention of accidents during field work is a major responsibility of the project supervisor and required training is intended to reduce the likelihood of accidents. See also, response to comments in Letter No. 53, Comment No. 1; and Letter No. 70, Comment No. 3.
3	Much of the original aim or philosophy behind management of national forests is contained in the Organic Administration Act of 1897 (30 Stat. 34, as supplemented and amended; 16 USC 473-478, 479-482, 551). Many uses are described in that act, just a few of which are forest protection, securing favorable conditions of water flows, furnishing a continuous supply of timber, mining, and road construction. A more contemporary statement of purpose is found in the Multiple-Use, Sustained-Yield Act of 1960 (74 Stat. 215, as amended; 16 USC 528-531). This act requires that national forests be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. See also response to comments in Letter No. 10, Comment No. 1.

trust from the people who wanted these areas preserved for posterity.

Also, it bothers me that you are not seeing the national forest lands holistically (seeing everything as a living unit) and what we would lose by eliminating certain plants, trees, animals, or insects. I object to a manipulated plastic world. The forest lands need to be seen as a dynamic living whole with every plant, animal, and insect dependent on every other part of the whole. Eliminating selectively certain plants or trees, eliminates a lot of other unique life that has taken nature millions of years to develop in a delicate balance. It seems to me like it is more cost effective in the long run to preserve our natural heritage and to not tamper with it except for minimal maintenance which is not destructive to the natural holistic pattern. What wants to grow there naturally, let it grow there in its natural mixture (hardwood or not!)

As a member of Garden Club of America, the Audubon Society, etc., I am vitally interested in endangered plants, flowers, animals, especially butterflies), beneficial insects, and birds. We have worked very hard to get animals and plants on the Endangered Species list. Spraying herbicides is anathema to this wild life, and even selected fire is against our principles, even though it occurs in nature, because it destroys wildlife habitat.

4

The National forests are much more than trees and being more of a living unit of not just trees, to use minimum maintenance, to leave the tree and wildlife mixture alone, and cost effective! I urge you to see the national forests as to do everything you can to preserve these areas as a national trust in their holistic primeval state for future generations of Americans!

Sincerely,
Nancy Biglane

Mrs James M. Biglane
4 Bingaman Lane
Natchez, MS 39120

4 Selective use of fire alters wildlife habitat, improving it for some species but not others. It does, however, represent a natural force which is vital to the maintenance of fire-dependent living systems. Data is presented in the risk assessment and the EIS which leads to the conclusion that wildlife can benefit from a program of proper use of all the major methods including herbicide. See also response to comments in Letter No. 277, Comment No. 1; and Letter No. 286, Comment No. 1.

174

Susan K. Snow
417 Brentwood Blvd.
Lafayette, LA 70503

23 August 1988

USDA Forest Service
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

Dear Sir,

Regarding the draft environmental impact statement for vegetation management in the Coastal Plain/Piedmont Region:

1 The is best alternative is A. By encouraging deciduous growth, more oxygen is brought forth in higher amounts, into the atmosphere to counteract carbon dioxide and other pollution that fossil fuels are creating -- the greenhouse effect and global warming. Agricultural pesticides including methylene bromide are also causing the global warming and hole in the ozone layer, so my second choice would be alternative D--eliminating their usuage.

I have completed some data research on the following and request that you take this into consideration.

"Herbicides are applied as either liquid sprays or solid granules. All spray-application tools are designed to produce 'large droplets' to minimize drift. The large and heavy granules are designed to minimize drift," said the USDA Draft Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont.

2 Drift occurs with every pesticide known, even those injected into the ground which off-gas. Only 10-15% of the pesticide actually reaches the target, the rest drifts into the air, soil, or into the waters as run-off but neither reaches the insect nor unwanted vegetation.

Studies done on drift in the 1960s at the University of California, placed a monitoring station 52 miles away and were testing a rice herbicide to see how far it would drift. Within a week, it was up to that 52 miles, and may have been further but they did not have a further station. They didn't think it would go that far, although, most drift occurs at least 1 - 2 miles by aerial, boom, or air-blast sprayers, in significant concentrations. "Drift is responsible global contamination of the world by pesticides. There is no pesticide spraying in the Arctic Circle but, as in the acid rain phenomena, core sampling along with the penguins tested -- 40 years of pesticides have been found," said Dr. Marion Moses, at a recent pesticide conference held in Lafayette, Louisiana.

After a very toxic organophosphate pesticide was sprayed with a new electrostatic sprayer, a toxic cloud was created by a thermal inversion. As this deadly cloud moved through a California community, 600 people had to be evacuated. Another incident in a gladiola field occurred where they used methyl bromide which off-gased to where 1200 people needed to be evacuated. Workers and innocent by-standers are in danger from "over-spray," when a plane flies over, spraying them. A woman and her son were driving along a road in Texas--his window up, her's open. They were directly sprayed and saturated with the pesticide; both

Response to Comments in Letter No. 174

From: Susan K. Snow

Comment No.	Response
1	The commenter's preference for alternative A was included in the content analysis of all comments received. There is inadequate available research to either support or refute your point about the photosynthesis of deciduous vs. other trees. Current understanding among plant physiologists is that the cumulative annual contribution of oxygen from conifers and hardwoods is about the same. The rate of oxygen production by deciduous trees is greater than that of conifers; however, conifers produce oxygen year-round. The use of methyl bromide is beyond the scope of this EIS. Its only use in forestry is in the treatment of forest tree nursery beds and to control Texas leaf cutting ants. Both uses are very limited in both quantity used and area treated.
2	The source of this data is unclear. Spray drift for aerial and ground operations is documented in the risk assessment and summarized in chapter IV of the Draft EIS. Broad-sweeping indictment of pesticide application is unwarranted. Several methods of application (including injectors and the tools used in many streamline operations) produce streams of liquid rather than sprays. Studies done in the '60's do not apply to the aerial or ground technologies permitted within the framework of extensive mitigation measures described in chapter II of the Draft EIS. The electrostatic sprayer mentioned is not even considered for use due to the small size of droplet produced. Drift from the equipment described in this EIS is minor when the specified mitigations are followed. Done with modern helicopter mounted equipment and only during certain weather conditions (mitigation measure number 15 on page II-51 of the Draft EIS), safety for workers is significantly greater than for other methods of vegetation management for almost all workers, and the risk to the general public is negligible.

directly sprayed and saturated with the pesticide; both became ill. She was able to drive to a hospital and was in intensive care for 3 days and almost died. These cases are not isolated, but occurred in states where a reporting system documented them.

3 Residues stay on vegetation for days or weeks. When the workers go back in the fields, there is enough to be absorbed into their skin, as would be with recreational visitors and forest service personnel.

I question the risk assessment and toxicological background statement evaluation of most of the eleven herbicides to be used.

4 Firstly, the herbicide dicamba (Banvel, Banvel CST, Banvel 720, Brush Buster, etc.) originally registered by Velsicol Chemical Corp. in 1967 has attracted attention because of the toxicity of its contaminants, Dichlodibenzo-p-dioxin (DCDD) and levels up to 50 parts per billion have been found. Although, EPA says no TCDD residues of the ultra-toxic form of dioxin have been found down to 2 parts per billion, both TCDD and dimethylnitrosamine which are suspected to cause cancer and have a tendency to leach through soils especially sandy soils. In addition, the Center for Disease Control says that one nanogram [a billionth of a gram] of dioxin is cause for concern. In another study, EPA said that all levels of dioxin are extremely dangerous and are cause for concern. Use of dicamba is restricted in California, where controls are more stringent than with the federal government.

".. it is labeled for use on weed control in turfgrass and utility rights-of way.** Woody plant control in site preparation in forestry. Cut-surface treatment, basal and foliar spray where it is readily absorbed and translocated by the roots, stems, and foliage of the plants. Acts as a growth regulator in suspected species. Persistency in soil is 3-12 weeks depending upon weather. Soybeans are extremely sensitive to dicamba and toxic effects have been shown to occur not only from drift, but even from volatilization from the surfaces of treated leaves in neighboring fields."

5 Yet, although Dicamba is of low toxicity by either the oral or dermal routes, it is quite irritating to the eyes. Studies indicate that although residues do not bioaccumulate in biological systems and based on the chemical industry's own data, EPA does not consider dicamba to be either a reproductive toxin or to cause birth defects, and preliminary short-term testing has not indicated any mutagenic activity--it is extremely mobile in soils, regardless of the organic matter or clay content, and high water solubility. Residues are quite persistent--2 months to 1 year--and are able to move vertically in the soil column. USDA found that dicamba was the most mobile of 40 herbicides evaluated, and warned that dicamba would likely contaminate groundwater.

6 There are a number of health and safety data gaps including chronic testing, carcinogenicity, environmental fate, exposure assessment, and certain residue tests.

7 For woody plant control in site preparation in forestry, use of goats have been effectively used in western states. Goats are less costly in the long run than questionable pesticides.

Secondly, EQSAMINE , known as Krenite, Krenite S. Foramine ammonium is labeled for use on non-cropland brush, railroads, rights-of-way,** industrial plant site, drainage

(Continuation of Forest Service response)

3 The maximum half-life of herbicides allowed for use (Class A herbicides, page II-33 of the Draft EIS) without further analysis is 60 days. All areas being sprayed are required to be posted with notices which include date of application, name of chemical, and other pertinent information. Therefore, the accidental public exposures described should never occur. Workers will be required adequate protective clothing and the public will have the choice to avoid or not to avoid clearly marked treatment areas. Wildlife risk analysis presented in appendix A clearly discloses probable risk of wildlife exposure in the treated areas (see chapter 7 of appendix A). No level of risk in excess of EPA standards is projected when the mitigations in chapter II of the EIS are properly employed.

4 Dicamba does not contain dioxins based on the scientific literature we have reviewed. Care must be taken when citing mid 1970's to early 1980's references on dioxin. Much unscientific information appears.

Please refer to the March 18, 1988, Journal of the American Medical Association in which a review of one major dioxin accident (Sevaso, Italy; July 10, 1976) and subsequent health implications is presented. Presently, the only human problems scientifically demonstrated as being caused by exposure to dioxins are a short-term reversible nerve dysfunction and chloracne (a severe acne-like skin disorder). Acute dioxin poisoning can also cause liver or kidney toxicity.

5 Within the risk assessment we present all of this information either directly or by incorporating the herbicide background statements presented in Agriculture Handbook 633.

6 This information is given in both the EIS and the Risk Assessment.

7 Goats have been used in western states for woody plant control. We do not understand from what standpoint you determine that goats are less costly in the long term than herbicides. As we indicated on pages II-34 and 35 of the Draft EIS, biological methods, such as the use of goats, can have favorable or unfavorable effects to the environment. Goats can effectively control woody species, however they are non-selective feeders and may affect non-target species as well as those you are trying to control. In a paper entitled "The Role of Biological Control, Intensive Skilled Labor, and Controlled Fire in Achieving Realistic Vegetation Management Objectives" Andres, Swezey, and Vogl (presented at USDA/EPA Use of Herbicides in Forestry Symposium, Arlington, Va., Feb 21-22, 1978; p. 191) state that:

> "... to optimize the use of goats, management is needed (herdsmen, fencing, water, perhaps supplemental feed) to assure each area is cleared properly without overgrazing (Jones, personal communication). Heavy goat traffic can cause soil compaction, denudation of vegetation, and the development of "dustbowl" conditions. In fact, if goats are held on an area too long, they may even kill trees. Goat escape should be prevented to avoid the establishment of feral herds that could compete with native browsers and cause unwanted brush damage."

This information is presented in Chapter II of the Draft EIS.

ditch bank, etc., including lands adjacent to and surrounding domestic water supply reservoirs. There is little or no leaching of fosamine through the soil. Half-life in soil about one week. Again, goats can be used for right-to-way and other measures, which would dispose of unwanted growth and fertilize the soil, simultaneously.

3. GLYPHOSATE: Monsanto's tradenames are Roundup and Rodeo; others include Accord are in wide use against non-selective herbicides, particularly against perennial plant species. Registered in 1972, Roundup is extensively used in agriculture, on rights-of-way ** and in forestry, while Rodeo is formulated for aquatic use. Treated plants relocate the systemic herbicide to their roots, shot regions and fruits, where it interferes with the plant's ability to form aromatic amino acids necessary for protein synthesis. Treated plants generally die in two to three days.

8 Glyphosate causes eye irritation in animal tests and skin irritation among workers handling the herbicide, thought to be caused by the unidentified surfacant which helps the pesticide penetrate the waxy cuticle of target plants. Data indicates it does not cause mutagenic, teratrogenic (birth defects), or reproductive effects. Controversy exists on the slightly increase incidence of benign kidney tumors in mice at high doses, and tumors of the thyroid and tests in rats. Contaminated with less than 100 ppb of N-nitroso-glyphosate (NNG), a by-product of synthesis, However, many N-nitroso compounds are animal carcinogens. EPA is not required to do further investigation of the toxicological effects of NNG, as it does not typically require data on these contaminates present at less than 1 ppm. The fact, that EPA's Scientific Advisory Panel has recommended that glyphosate be classified as a Class D carcinogen (evidence in inconclusive) is cause for concern and EPA is requiring Monsanto to repeat both
9 studies by the end of 1990. Until the pesticide is proven safe, it should not be used'

According to the Registration Standard, it usually persists for only short periods in water or soils. Researchers report that effectiveness of glyphosate was reduced when it was mixed with any of 7 other herbicides (a common practice). Half-life in soil is usually less than 2 weeks. Residues have been known to persist for months in anaerobic soils deficient in the necessary bacterial populations. EPA notes many data-gaps in the area of environmental fate.

Considered relatively non-toxic by EPA (June, 1986 Registration Standard) to most forms of life. Because of water solublility, it shows little tendency to bio-accumulate and is quickly excreted, mostly unchanged.

10 4. After dousing the forests and rights-of-way ** both in Vietnam and the U. S. with PICLORAM (Agent White, Tordon) for the last 25 years, EPA recognized in 1985 that it does not have a complete health and safety data package on the herbicide or its metabolites.

Federally sponsored and independent tests indicated picloram causes liver an endocrine organ tumors in rats, and spleen tumors in mice, liver and kidney damage in mice, skin irritation, hair loss, vaginal bleeding and atrophy of the testes.

To bring picloram (often used in conjunction with a phenoxy herbicide such as 2,4-D) into accordance with current EPA requirements, DOW chemical must provide EPA with several oral, dermal and inhalation acute tests, chronic feeding, oncogenicity (tumor formation), teratology (birth defects), and genetic damage studies. Also requests are

(Continuation of Forest Service response)

8 Information about glyphosate and the discrepancies in toxicological behavior between Roundup, Rodeo, and the new Accord formulations are discussed in both the EIS and the risk assessment. Increased dermal sensitization of Roundup as opposed to Rodeo and Accord is indeed related to the surfactant in the formulation.

9 We have established that eight of the herbicides evaluated in this EIS pose risks which are acceptable within very strict limits which we also have disclosed. Data related to glyphosate is ambiguous, however, the Risk Assessment analysis (appendix A) shows no significant risk, based on the information known at present.

10 The only data we have which agrees with this statement is from subchronic and chronic testing where the doses of of picloram administered were 1000 mg/kg/day or greater. Further, administration was in food (ingestion doses). To get an equivalent dose a 150 pound human would have to eat 2.1 ozs/day of picloram for an extended period (the testing for subchronic effects was of a 13-week duration). For humans, it would be several years to get an equivalent dose. We do not envision anyone eating about a pound of picloram per week for extended periods of time. No probable exposure discussed, even the accident scenarios, could cause this type of exposure.

tests to examine animal metabolism, toxicity to plants were the basis for classifying the herbicide as "restricted use" in 1978.

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The herbicide cannot be washed off a treated product. "EPA is aware that it has next to no information on the levels of either the parent compound of its metabolites in the tissues of both plants and animals," which is vital as picloram drifting off-site has been known to damage crops 800 feet from the point of application. Because picloram is water soluable, it can move in sandy soils low in organic matter. Degradation by soil micro-organisms is slow and primary breakdown is by ultra-violet light. Persistence in soils varies by soil type and weather but may exceed 100 days.

Also discussed in the Standard are the carcinogenic contaminants of picloram formulations, hexachlorobenzene (HCB) and nitrosamines. Studies show HCB can also cause birth defects cleft palate and kidney malformation as will as cause liver and neuroptoxic effects. Furthermore, the persistent and fat-soluble HCB has been found in human milk, dairy products, and poultry, according a 1978 EPA review. Generation and review of the data is expected to take at until 1990.

11 5. Despite numerous gaps in the data base concerning environmental impact and ambiguous toxicological results, EPA has closed the book on Hexazinone whose tradenames are Velpar, Velpar L, Pronone 5G, Pronone 10G.. maintaining verbally that its data base is "adequate." Made by DuPont, hexazinone is one of the top herbicides used in rights-of-way control.

Labeled for use on non-cropland brush control along railroads, rights-of-way, industrial plant sites, drainage ditch banks, etc., including lands adjacent to and surrounding domestic water supply reservoirs, and forestry, a broad spectrum, systemic, triazine herbicide which acts by disrupting plant photosynethesis. According to the 1984 EPA "Toxicology One-Liner," it is of moderate acute toxicity, with acute symptoms including eye irritation and skin rashes. Minnesota forest workers have complained of severe headaches upon exposure.

While two studies for cancer showed negative on rats and mice, a third study noted liver hypertrophy, liver hyperplastic nodules, and focal necrosis. Its chemical cousins, atrazine can cause cancer, and cyanzine is in Special Review for causing birth defects. Mutagenicity results are inconclusive.

12 EPA notes that the chemical and/or its metabolites have been found in goat (70 ppb), and cow milk (30-50 ppb). The residue tolerance in meat, milk, and eggs is 100 ppb.

According to a 1984 Alaskan Railroad environmental assesment hexazinone residues and/or those of its principal metabolites are persistent in the soil from a few weeks to 12 months. It is highly water-soluable and leaches readily, (a common problem among triazines).

Scientists independent of the EPA, show the chemical's ability to concentrate in the bodies of terrestrial invertebrates. Much of the environmental fate data required by the 1982 Standard has since been waived.

13 6. 2,4-D In addition to dioxin and nitrosamine contamination in 2,4-dichlorophenoxy acetic acid (2,4-D), a National Cancer Institute (NCI) study shows that the chemical can cause cancer in humans exposed to it. Studies by the manufacturer submitted to the EPA in June 1986,

(Continuation of Forest Service response)

11 We did not reevaluate the EPA data base. EPA requires submission of human toxicology data which is relevant within the projected use pattern of the chemical. Within this framework, EPA has determined that there are no longer relevant data gaps. Data gaps recognized in the EIS and presumably by the writer are environmental in nature. Modeling is used to project probable effects and results are disclosed in the EIS. See also response to comments in Letter No. 150, Comment No. 23.

12 The Alaskan Railroad EA half-life data for hexazinone is not relevant to the southeastern Coastal Plain because of extreme climatic differences. The primary pathway for hexazinone breakdown is through microbial action. The number of microorganisms and their annual period of activity are far more restricted in Alaska than they are in the southeast. Longer half-life would be expected there.

13 The EPA has recently published the opinion that "...existing epidemiological data are inadequate to assess the carcinogenic potential of 2,4-D..." (Federal Register 53:9590; Mar. 23, 1988). When rendering this decision they also stated that the NCI/Kansas study had drawn conclusions unsupported by the data presented. Several procedural mistakes have caused the EPA, several independent consultants, and the President's Science Advisory Panel to reject the conclusions drawn in this study. The EPA does admit that the NCI/Kansas study may have merit as a basis for further work. In the Draft EIS, 2,4-D was identified as a Class B herbicide and will not be used unless a Class A is unsuitable, and adverse effects can be mitigated (see pages II-32-33 and II-49 of the Draft EIS).

indicated that the herbicide, which is widely used in agriculture, forestry and urban settings, can cause rare brain tumors (astrocytomas) in rats. Both studies indicate a need for closer examination of other commonly used phenoxies such as dichlorprop, meroprop, MCPA, and 2,4,5-T (banned in U.S. but used on imported crops).

THE NCI study, studied all cases of diagnosed cancer among Kansas farmers between 1976 and 1982, those who were exposed to 2,4-D for 20 or more day per year were sixfold more likely to develop non-Hodkins lymphoma than non-farmers, while farmers who were mixed or spread the herbicide were at eightfold higher risk. Farmers who took precautions to minimize their exposure were at lesser risk.

A bioassay conducted by the Food and Drug Administration found increased incidences of lymphosarcoma (malignant tumors) in rats of both sexes, breast tumors in female rats and reticulum cell sarcoma (malignant blood cell tumors) in male rats exposed to 2,4-D.

According to a 1982 EPA manual, 2,4-D is irritation to the skin, eyes and mucous membranes, and, since easily absorbed by inhalation and skin, can cause toxic injury to liver, kidney, muscle and brain tissues. Acute sympstoms of 2,4-D exposure include: chest and abdominal pain, vomiting, dizziness, and muscle twitching, tenderness or stillness. Seemingly minor skin exposure have been known to cause peripheral neuropathy. However, there is no bioaccumulation, as phenoxy acids are quickly excreted in urine.

Industry reports show that amine salt formulations of 2,4-D may become contaminated during synthesis with up to several hundred parts-per-billion of potential carcinogens, the nitrosamines. Three forms of dioxin have been identified in 2,4-D (di-, tri-, and tetrachlorodibenzodioxins).

Auxins, known plant growth regulators are mimiced by phenoxy acid herbicides causing treated plants to literally grow themselves to death. 2,4-D is known to leach from soils low in clay organic content and in cool, dry, nutrient-poor soils. Under these conditions, residues may persist for several months.

7. 2,4-DP California Restricted Use Pesticide. Based on EPA Data, June 1988, teratogenic pesticide.

14 8. Triclopyr. (Garlon 3A, Garlon 4, and others.) Dow Chemical widely used for control of broad leafed weeds in forest site preparation and rights-of-way ** management program.

Structurally, Garlon (registered in 1973) is a chemical cousin of 2,4-trichlorophenoxy acidic acid (2,4,5-T), and like that latter it mimics plant growth hormones called auxins, readily translocating throughout the plant. Unlike 2,4,5-T, however, due to a structural difference, Garlon is not contaminated with dioxins. It is slowly metabolized by soil microbes, having a soil half-life ranging from 79 days at 60 degrees F. to 156 days at lower temperatures. The breakdown products, trichloropyriddinol and trichloromethoxpyridine, are more persistent, with half-lives ranging from between 8-279 days and 50-300 days, respectively. However, Garlon binds poorly to soil particles, and is therefore expected to leach easily into ground water surface waters. Garlon 4 is much more toxic to fish than Garlon 3A.

(Continuation of Forest Service response)

14 The half life shown for triclopyr (at 60 degrees F) exceeds that which we have determined is relevant in the southeastern Coastal Plain and Piedmont forests.

The greater toxicity of Garlon 4 over Garlon 3A is directly related to the chemical structure of the herbicide. Garlon 3A is the amine form of triclopyr, while Garlon 4 is the ester form. In addition, Garlon 4 is formulated with "petrolium distillates" clearly labeled as part of the inert ingredient component. This information is presented both in the risk assessment and the Draft EIS.

Dr. Shearer's data has not been validated by EPA. Sample size was insufficient to support the conclusions drawn.

Independent toxicologist, Dr. Ruth Shearer revealed, after summarizing health and safety data, that a statisically significant increase in benign pulmonary tumors was found in a two year mouse feeding study, at an eight-fold lower dose than normally is recommended in a carcinogenicity study. Data base on this chemical has not been fully re-evaluated.

9. SULFOMETURON METHYL (Oust): requested data not received as yet.

10. Tebuthiuron (SPIKE, GRASLAN, and others) is a very poor choice. It is extremely persistent and resistent to break down. Although, your report says "it is slowly absorbed by plant roots and may take up to three years to kill some plants," my sources say that if one feeder root takes this chemical into the tree, it will kill the tree. Tebuthiuron can create "moonscapes." In addition, studies in the United State and Canada have found this chemical leaches into groundwater. 15

11. Imazapyr has not been received from my data sources as yet.

** Although, EPA considers exposure to the chemicals to be sufficiently low given their pattern of use and thus, under federal regulations 40 CFR Part 158, exempts the chemicals from chronic feeding and cancer studies. Mutagenicity and teratogenicity studies are only "conditionally required" and is environmental fate data, if at all. And although testing requirements, product labeling is also weak. Labels with instructions such as "do not apply directly to water" (Tordon, [picloram]), are not reflective of use patterns given the proximity of many spray routes to water and the potential for aerial drift or runoff.

Alternative control programs for right-of-way include manual techniques employing chainsaws and girdling, mechanical controls including brush and root-taking and discing or plowing, and biological controls incorporating goat grazing and the planting of low lying competitive bush indigenous to the area.

Therefore, I suggest that due to health problems, knowledge that all pesticides drift more than two miles, and that only up to 15 percent reach target; along with health risk data, ground water contamination studies and the fact that safe alternatives exist as commented within--that no pesticides be used and that for long term protection that we lean toward alternative A, compromising with alternative D. 16

Please carefully weight this health data and inform me of your decision.

Sincerely,

Susan K. Snow

(Continuation of Forest Service response)

15 Clearly stated in the mitigation measures in chapter II (pages II-32-33 and II-49 of the Draft EIS) is the fact that tebuthiuron (Class B herbicide) will not be used without additional analysis showing that its risk is being mitigated to acceptable levels. Tebuthiuron is indeed problematic; however, with careful project planning and execution there may be a place for it -- but its use will be very limited and heavily mitigated.

16 Data presented in the risk assessment, the EIS and previous responses does not support the conclusions drawn in the commenter's summary paragraph. We believe that the documentation clearly demonstrates that low-risk use of herbicides is possible. See response to comment 1 above regarding alternative A. See response to comments in Letter No. 72, Comment No. 1, regarding alternative D. For effects on surface and ground water, see response to comments in Letter No. 70, Comment No. 3.

Additionally, as a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

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THE ATTORNEY GENERAL
OF TEXAS

JIM MATTON
ATTORNEY GENERAL

August 24, 1988

FEDERAL EXPRESS

Mr. John E. Alcock
Regional Forester
U.S.D.A. Forest Service, Southern Region
1720 Peachtree Road, N. W.
Atlanta, Georgia 30367

Dear Mr. Alcock:

This letter contains comments of the State of Texas Attorney General's Office on the U.S.D.A. Forest Service Southern Region Draft Environmental Impact Statement Concerning Vegetation Management in the Coastal Plain/Piedmont, May 16, 1988.

With the publication of the Vegetation Management DEIS, the Forest Service has failed to answer the concerns we expressed in our earlier review of the Land and Resource Management Plan for Texas forests and its related EIS: the Forest Service is taking a narrow approach to its management of the National Forests of Texas. We urge the Forest Service to at least consider a reasonable set of alternatives and to adequately evaluate the environmental consequences of such alternatives.

1 Although the Vegetation Management DEIS is supposed to complement the Forest Plan and its EIS, this two-step approach is inadequate. It is no substitute for addressing the major issues up front. Somewhere in the process of developing the Plan, its EIS, and now the Vegetation Management DEIS, the Forest Service should have taken a hard look at using a mix of even-aged and uneven-aged management techniques. With uneven-aged management, the need for vegetation management is reduced. Accordingly, many costs and environmental harms can be reduced. Unfortunately, the DEIS accepts without questioning the land allocation and resource output decisions of the Forest Plan. In Texas, the Plan calls for 100% even-aged management on the general forest. The Plan allows clearcutting for 60% of the end-of-rotation harvests and shelterwood and seed-tree cuts for the balance. These allocations result in the need for substantial, intensive vegetation management.

512-463-2100 SUPREME COURT BUILDING AUSTIN, TEXAS 78711-2548

Response to Comments in Letter No. 265

From: Joe Riddell/Mary Ruth Holder

Comment No.	Response
1	Each Forest Land and Resource Management Plan discusses which silvicultural system and associated harvest cutting methods are appropriate, and where they are to be used, based on each forest's unique mixture of forest resources and public needs. As stated on pages I-6 and I-7 of the Draft EIS, the issue of silvicultural systems is outside the scope of this EIS. However, regardless of the mix of silvicultural systems used on the National Forests in Texas, vegetation management will still be needed for the purposes listed in the Draft EIS on pages I-1 and I-2. The Draft EIS on page II-11 also states that the analysis is not affected by selection of harvest cutting methods. Additionally, all of the methods and tools analyzed in this EIS are applicable and available for use, as specified by each alternative, regardless of the silvicultural system or associated harvest cutting methods identified in Forest Land and Resource Management Plans. It is incorrect to assume that under the uneven-aged silvicultural system that less vegetation management (including intensive vegetation management) would occur than under the even-aged silvicultural system. For either the even-aged or uneven-aged silvicultural system, site-specific analysis will determine appropriate methods and tools, intensity and selectivity of application, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. For example, vegetation management projects, with the objective of establishing the regeneration of a new age class, are designed to reduce plant competition, so that pine and/or hardwood seedlings receive needed amounts of sunlight, water, nutrients, and growing space in order to survive and grow, in both even-aged and uneven-aged systems. Costs of vegetation management are not eliminated under the uneven-aged silvicultural system. While Plans set overall direction for managing national forests, the selected alternative from this EIS sets further direction on how vegetation is managed for the activities listed on pages I-1 and I-2 of the Draft EIS. This EIS establishes the framework for future decision-making at the site-specific level regarding the use of specific methods and tools. Forests may be more restrictive than the EIS regarding method and tool selection and use, but not less. The choice of a specific method or tool for field application will be made at the site-specific level, and includes the option of no action (no treatment). Additional discussions regarding the relation of this EIS with Forest Land and Resource Management Plans can be found on pages I-1 through I-3 of the Final EIS.

As discussed in the State's appeal (No. 2019 incorporated herein by this reference) of the Forest Plan and its related EIS and Record of Decision, Texas considers this deficiency to render the documents legally vulnerable. The adherence of the Vegetation Management DEIS to the Plan compounds the error and makes the DEIS likewise unacceptable.

Any debate of the alternative management techniques to be considered must also recognize the U.S. District Court's recent decision requiring more protection for the endangered Red-cockaded woodpecker, Sierra Club et al. v. Lyng et al., No. L-85-69-CA (E.D. Tex.) Although the State was not a party to that case, it is clear from our review of the Court's opinion that some of the details of forest management will remain unsettled until the court approves the Forest Service's Comprehensive Plan for silviculture within 1200 meters of woodpecker colonies. It is also clear that the Forest Service must abandon its traditional (and planned) even-aged management practices in a large portion of the Texas forests. In light of these circumstances, we respectfully request that the Forest Service forego any further attempts to apply this DEIS to activities on the National Forests and Grasslands of Texas.

Last year the State requested that the Texas Forest Plan and its EIS be revised to address numerous shortcomings pointed out in the State's appeal. Now the EIS and the Plan must be modified to incorporate the requirements of the recent court decision. To debate this DEIS seems inappropriate (and even wasteful) when the subject vegetation management is apparently not going to happen (at least in Texas) as had been assumed. In the State's view, consideration of the effects of alternative degrees and methods of vegetation management should be an integral part of the revised EIS to accompany revision of the Forest Plan.

The scoping process should provide a fair opportunity for state agencies, organizations, and citizens to offer detailed guidance in the development of a new EIS. The appeals of the Texas Forest Plan contain a number of worthy suggestions pertinent to forest planning and vegetation management. We have included below some briefly-stated general concerns about the manner in which various issues have been addressed in the Vegetation Management DEIS. We trust that the Forest Service will give due consideration to these (and others') comments as it begins to reconsider forest planning in general and vegetation management in particular on the National Forests and Grasslands of Texas.

The following are some of our briefly-stated general concerns about the DEIS:

(Continuation of Forest Service response)

Depending on which alternative is selected, Plans may need to be amended, especially regarding methods and tools allowed and mitigation measures (standards and guides) applied. Amendments to Plans will be done through the Record of Decision for this EIS.

The EIS is prepared to conform to the requirements of the National Environmental Policy Act. Chapter I, part A, explains that each forest has a Land and Resource Management Plan (which was prepared under 36 CFR 219). This EIS is to be implemented consistent with the goals and objectives found in Forest Land and Resource Management Plans, and within any legal constraints that any forest may be under, such as the U. S. District Court's decision regarding the endangered red-cockaded woodpecker (Sierra Club et al. v. Lyng et al., No. L-85-69-CA (E. D. Tex.).

1. Data Gaps and Limitations

At a number of places, the DEIS acknowledges that there is inadequate knowledge or research to permit drawing sound conclusions concerning the effects of proposed vegetation management practices. In many instances, then, a conservative approach should be taken to avoid possible harm. 2

The lack of data is especially acute in the case of herbicides. The conservative approach would be to minimize their use until more is known about their effects. Yet the preferred alternative would approximately double herbicide use and presumably reintroduce them in Texas (where their use on the National Forests is now suspended).

Even when data are available, the ranges of uncertainty and variability should be quantified whenever possible to permit a better evaluation of the confidence to place in the numbers.

The DEIS concludes that herbicides can generally be used without undue harm if appropriate precautions are taken. However, in the case of chemical use in the environment, history is full of instances of unanticipated harm. Even when experts think they know enough, surprises happen.

2. "Tiering" of the DEIS and Environmental Analyses

The DEIS promises that each "project" will be analyzed on a site-specific basis. The site-specific analyses may tier to the environmental impact statements for the respective forest plans and for vegetation management. "This environmental analysis will consider site-specific techniques, intensity of application methods, and potential environmental effects of any method considered. A reasonable range of alternative methods, including the use of methods which do not involve herbicides, will be examined and evaluated." (DEIS, II-35) The concept of "project" needs to be defined broadly and inclusively. 3

Recently the State has reviewed several environmental analyses of projects in the National Forests of Texas. If this sample is representative, we are very concerned that a sizable portion of the analyses may be no more than pro forma, fill-in-the-blank documents. Further, by piecemealing projects, the Forest Service can try to claim that a given project has no significant impact.

(Continuation of Forest Service response)

2 In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." (40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier regulations. Thus, we have attempted to address both sets of regulations in our analysis.

Analytic approaches were all conservative. Where modeling is done assumptions used were conservativly based on available data. The final result is a document which significantly overestimates risk, or, conversely, favors optimum worker and public safety. See also response to comments in Letter No. 150, Comment No. 23.

3 New sections I-C and I-D have been added to the Final EIS that outline the implementation of vegetation management projects. All forests will fully comply with the regulations of the Council on Environmental Quality for implementing the National Environmental Policy Act (40 CFR 1500 et. seq.) when implementing site-specific projects. Piecemealing projects are not consistent with the regulations and will not be done.

3. Site-Specific Decisions vs. Preferred Alternative

4 There seems to be a contradiction in the process of having a preferred alternative but at the same time leaving decisions on methods to a site-specific determination. If each site-specific analysis is to be done on its own merits, then it is conceivable (if not highly likely) that in any given year, the acreage treated by each of the various methods will be significantly different from the acreages designated under the preferred alternative (DEIS, II-62). The only way to prevent this divergence would be to have allocations--for example, requiring each forest or ranger district to use certain methods only certain percentages of the time. But having such allocations would bias the results of the site-specific analyses.

4. Water Quality Monitoring and Evaluation

5 The DEIS recognizes the variability and the gaps in data assessing the environmental impacts on ground and surface waters. The DEIS states: "A process will be followed that includes implementation of BMP's, monitoring and evaluation of their application and effectiveness, and adjustment of practices as needed to protect beneficial water uses and comply with State water quality laws." (DEIS, II-37) The best management practices (BMP's) should be described and evaluated in detail. In the State's appeal of the Plan, the importance of monitoring and evaluation are discussed. The State requested that the Plan make a priority commitment to the monitoring and evaluation. However, the Regional Forester responded by pointing out that implementation of the monitoring "is dependent on receiving the requested budget." Is the Vegetation Management DEIS now making the priority commitment the State requested?

5. Diversity

6 The DEIS gives inadequate consideration to preserving and enhancing natural biological diversity. Diversity is addressed in some detail in the State's appeal of the Forest Plan and in two letters from the Texas Parks and Wildlife Department to John Alcock and Steve McCorquodale, dated March 18, 1987, and July 24, 1987, respectively. (The letters are attached as exhibits A and B hereto). The DEIS does not meet the concerns raised in the appeal or the letters.

5. Cultural Resources

7 At the end of FY '84, only 16% of the National Forests and Grasslands in Texas had been surveyed for the presence of significant cultural resources. (EIS, III-11) The Texas Forest Plan anticipates that the cultural resources inventory will not be completed until the year 2005. (Plan, M-1) Meanwhile, cultural resources are at risk of being destroyed by intensive vegetation management practices.

4 For clarification, see the first paragraph of section II-B and new sections I-C and I-D of the Final EIS. See also the last paragraph of response 1 of this letter.

5 The EIS states that some BMP's to protect water quality are listed as mitigation measures in chapter II (pages II-46 and II-47 of the Final EIS). These measures are the minimum required over the Coastal Plain and Piedmont. Project BMP's may be stricter but not less. These BMP's were evaluated in the chapter IV analysis. All forests will comply with State BMP's, which may vary from state to state. As with BMP's, the monitoring requirements listed with the mitigation measures are the minimum to be applied over the area.

6 As indicated on pages I-6 and 7 of the Draft EIS, issues such as silvicultural systems, harvest cutting methods, and landscape-wide diversity were addressed in Forest Land and Resource Management Plans (prepared under 36 CFR 219) and are outside the scope of this document. However, this EIS is prepared to conform to the requirements of the National Environmental Policy Act and as such it displays effects of vegetation management methods that may be used to implement Forest Land and Resource Management Plan goals and objectives on Coastal Plain/Piedmont forests for the programs detailed in section I-A. Pages IV-30 to IV-72 of the Draft EIS specifically display the effects of vegetation management on plant and animal communities. Mitigation measures, such as numbers 1 and 2 on pages II-35 to 37; numbers 15 and 17 on page II-41; numbers 12 and 13 on page II-45; numbers 2 and 5 on page II-48; number 8 on page II-49 and 50; and numbers 1, 2, and 3 on page II-54 of the Draft EIS are specifically designed to protect and in many cases enhance plant and animal diversity.

7 Alternative G reduces (from current) the risk to cultural resources (see table II-8 of the Draft EIS). Mitigation measure numbers 10 and 11 on pages II-39 and II-40 of the Draft EIS minimize risk of destruction. Consideration of cultural resources will also be made at the site-specific level using forest plan direction. See also response to comments in Letter No. 52, Comment No. 22.

7. Soils

8 It appears that some of the consideration of soils may have been overly simplistic. For example, the DEIS seems to classify essentially all of the Texas National Forests as rolling uplands. (DEIS, IV-92) In assessing surface erosion (in Appendix B), only one set of coefficients was used for the rolling uplands (and thus, all the National Forests in Texas).

8. Grasslands

9 Vegetation management on the National Grasslands needs to be separately discussed. As the DEIS is now written, the grasslands are lost in the shuffle. The grasslands are not even listed in the index to the DEIS.

9. Public Notification of Herbicide Use

10 There should be thorough notification of the public of any areas which have been or will be treated with herbicides. Although signs may help, maps, flagging, and direct warnings (e.g., announcements from helicopters before spraying) should be used.

10. Irreversible and Irretrievable Commitment of Resources

11 This section of the DEIS is entirely too sketchy. It fails to acknowledge many potential adverse effects of vegetation management practices discussed throughout the DEIS.

12 This section also asserts that Alternative A may result in irreversible loss of "[s]ome endangered plants." (DEIS, IV-33) In the Texas National Forests, the plant community inventories are incomplete. As a result, vegetation management puts the sensitive plant communities at risk, especially under alternatives other than A.

11. Consultation With State Agencies

13 On March 18, 1987, and July 24, 1987, the Texas Parks and Wildlife Department expressed several concerns to the Regional Forester's Office concerning the development of the DEIS. (See attached exhibits A and B). It does not appear that the DEIS satisfactorily responds to those concerns.

8 Most of the Texas national forests is rolling uplands. This landtype includes many soils developed from similar parent materials. One set of coefficients was used for this landtype to assess average erosion potential. This approach is based on thousands of field observations and is proper for a programmatic EIS like ours. Before these vegetation management practices are implemented, project analysis will consider site-specific soil characteristics. See mitigation measure number 1 on pages II-35 and II-36 of the Draft EIS.

9 See response to comments in Letter No. 167, Comment No. 21. The index provided is a general subject index and is not intended to be all inclusive. Neither the individual forests nor grasslands are specifically listed. The very first page of the summary (iii), and also the first pages of chapters I and III of the Draft EIS clearly demonstrate the inclusion of the grasslands.

10 Health risks posed by herbicide use are demonstrated (in risk assessment and the Draft EIS) to be low when the required mitigations (chapter II, pages II-48 to II-54 of the Draft EIS) are followed. Posting areas to be treated and notifying neighbors of proposed aerial treatments are reasonable actions to take, and are required as stated in mitigation measure number 9 on page II-50 of the Draft EIS. Forests may take more precautions based on needs identified during preparation of project site-specific analysis.

11 This section is intended to highlight major resource commitments, not to be an exhaustive list of all potential adverse effects discussed throughout chapter IV. This EIS makes no irreversible or irretrievable commitment of resources. This EIS displays the projected effects of vegetation management for the activities listed on page I-1 and I-2 of the Draft EIS. The irreversible or irretrievable commitment of resources will occur at the site-specific level and will be accompanied by site-specific analysis that discloses the environmental effects.

12 For all alternatives except A, the risk to sensitive species would be minimized by mitigation measure number 2 on page II-36 of the Draft EIS. It specifically states that when adequate population inventory information is unavailable, it will be collected when the affected site has a high potential for occupancy by a threatened, endangered, proposed, or sensitive species. In addition, figure D-1 of the Final EIS traces the process required to insure adequate assessment of potential harmful effects to these species.

13 Please see chapter VI, part A for a summary of how public comment was sought and analyzed. Also see chapter I, part F, pages I-4 to I-7 of the Draft EIS for issues that resulted from all comments received.

Thank you for giving us the opportunity to comment and for your careful consideration of these matters.

Sincerely,

Joe Riddell by Mary Ruth Holder

Joe Riddell
Assistant Attorney General

Mary Ruth Holder
Assistant Attorney General

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0259m

EXHIBIT A

We copied 3/19/87

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CHARLES D. TRAVIS
Executive Director

March 18, 1987

Mr. John E. Alcock
USDA Forest Service
1720 Peachtree Rd., N.W.
Atlanta, Ga. 30367
Attention Rm. 360 S

Dear Mr. Alcock:

This letter responds to your request dated January 21, 1987 for comments on the U.S. Forest Service's proposed Environmental Impact Statement concerning alternative methods for vegetation management on the National Forests in Texas (NFT). Multiple-use of forest vegetation in the NFT is clouded by an emphasis on timber as a commodity, and a relative lack of attention to the precepts of ecosystems. The Texas Parks and Wildlife Department supports more holistic management of the forest communities. Considering widespread habitat destruction, and particularly the minimal amount of forested public land in Texas, the National Forests may become the most significant forests of the future. And these forests may ultimately become more important for their recreational and scientific values as natural ecosystems than for timber and grazing. 14

Within-stand and between-stand plant and age-class diversity, therefore, is the major issue that the proposed EIS should address. Throughout the Coastal Plain/Piedmont, the majority of timber stands on the National Forests are typed to pine management due to climate, soil types, economics, silvicultural emphasis, and other factors. On the NFT, approximately 88 percent of the timber stands are typed to pine management. Given this large area in which pines are typed as the best suited or dominant species, plant diversity, and more specifically an adequate component of hard- and soft-mast producing species in the dominant or codominant positions, should be maintained. At present, the diversity within and between pine stands is not adequate to provide for the needs of wildlife and the maintenance of minimum viable populations of all species. Specific vegetation management methods, used either singly or in combination with others, may perpetuate this shortcoming. 15

(Continuation of Forest Service response)

14 See response to comments in Letter No. 14, Comment No. 1.

15 The need to provide and maintain a variety of hard- and soft-mast producing species when doing vegetation management treatments is specifically addressed by mitigation measures 15 and 17 on page II-41 of the Draft EIS. See also response to comment number 6 of this letter.

Opportunities exist to increase between-stand and within-stand diversity by taking advantage of soil capabilities. Regional guidelines indicate that 15 percent of the forest soils of the NFT are capable of supporting hardwood management types, and an additional 23 percent are capable of supporting pine-hardwood or hardwood-pine management types. These percentages of soil types capable of management for hardwoods may be underestimated. Yet only 12 percent of NFT timber stands are currently typed to hardwood management. Certain vegetation management methods may contribute to keeping soil types from producing the diverse species composition that they are capable of producing.

An increase in upland hardwood management types should be highest priority in NFT to increase both between-stand and within-stand diversity, due to the extreme scarcity of these types. Compared to pine management types, hardwood management types more closely approximate the potential natural forest types over most of the NFT. High priority should also be given to continuing the recent trend to increase streamside management zones and other hardwood key areas within NFT pine stands. The uncomfortably high "edge to core" ratios of these hardwood inclusions should be reduced to maintain regeneration of preferred hardwood species.

Additional comments related to increasing plant diversity are presented in the Addendum. I appreciate the opportunity to provide comments, and I look forward to your response.

Sincerely,

Charles D. Travis
Executive Director

CDT:TDH:CAM:JBO:MK:NEC:vak

cc: Mr. F. Dale Robertson, Chief, U.S. Department of Agriculture, Forest Service, Washington D.C.
Mr. Mike Lannan, U.S. Department of Agriculture, Forest Service, Lufkin, Texas
Mr. Craig McMahan, Texas Parks and Wildlife Department, Austin
Mr. Nick Carter, Texas Parks and Wildlife Department, Austin
Mr. Brent Ortego, Texas Parks and Wildlife, Jasper
Mr. Mike Krueger, Texas Parks and Wildlife, Lufkin
U.S. Fish and Wildlife Service, Houston
U.S. Fish and Wildlife Service, Ft. Worth
Environmental Protection Agency, Dallas

Alcock, A. 1

Addendum

Additional comments by the Texas Parks and Wildlife Department on the U.S. Forest Service's proposed Environmental Impact Statement on vegetation management:

16 1. Prescribed Fire: Drainage areas (streamside management zones) and hardwood key areas within pine stands, while generally too small to break out as separate stands, are more capable of producing hard- and soft-mast tree species than the surrounding stand. These sites should be protected from prescribed fire if conditions are such that a fire would burn through them unchecked if not stopped by a firebreak. Burning results in damage to hardwood species reproduction and initiates butt rot in hardwood trees. Hardwood stands also should not be burned.

17 2. Site preparation (mechanical, prescribed fire, hand tool or a combination of these): Site preparation is commonly used in the regeneration of a stand, both artificially and naturally. In pine regeneration areas specifically, the reasons for site preparation include preparing a seed bed, removing debris for ease of planting and/or reducing competition for pine seedlings. Given the concern that the overall mast-producing species component within pine stands is below recommended wildlife habitat management guidelines and standards, the site preparation methods used should be the ones that have the least effect on hardwood reproduction within the stand. Also, some types of site preparation result in the movement of soil, either mechanically or by subsequent erosion, reducing the overall capabilities and productivity of the site. These methods should not be preferred over less intensive methods.

18 3. Release, thinning: On artificially regenerated pine stands, the densely planted pines, along with pines seeded in from perimeter trees, quickly overtop and thus reduce herbaceous and hardwood plants in the understory which are desirable for wildlife. Mechanically thinning at early ages would improve the species diversity within these stands. When artificial regeneration is prescribed, a lower density of plantings than is currently practiced should be required until wildlife management guidelines are realized.

(Continuation of Forest Service response)

16 Mitigation measures on pages II-44-45 of the Draft EIS protect streamside zones and key hardwood stands and inclusions from prescribed fire.

17 Mitigation measure number 1 on page II-35, numbers 16 and 17 on page II-41, numbers 3 and 4 on page II-44, and numbers 1-8 on pages II-46 and II-47 of the Draft EIS specifically outline project coordination requirements that consider, protect, and/or promote vegetation diversity and site productivity for vegetation management treatments. In addition, the preferred alternative (modified G) in the Final EIS eliminates use of severe slash burns, raking, heavy disking, and heavy grazing, which sharply reduces risks to soil productivity.

18 Mitigation measure number 4 on page II-38 of the Draft EIS provides stocking standards which range from low to high levels. These are guides and are used in conjunction with professional judgment to determine the appropriate stocking levels depending upon specific site conditions. Mitigation measures 5 and 6 on page II-38 of the Draft EIS provide release and precommercial thinning guidelines for young pine stands. Mitigation measure number 17 on page II-41 of the Draft EIS insures that wildlife needs regarding hard- and soft-mast producing species as well as understory species are considered, protected, and/or managed for when conducting TSI projects such as release and precommercial thinning.

Alcocke, A. 2

Related to this issue, the pines that are planted are generally genetically superior and are bred and managed for their superior growth characteristics. When these trees are planted in clearings and receive the benefit of site preparation, releases, prescribed burning, etc. they successfully compete with the surviving native hardwoods for space, sunlight and nutrients. This results in pine plantations with very few hardwood mast producers in the overstory and very little contribution to the food and cover needs of wildlife. The use of natural pine regeneration is a preferred alternative.

19 4. Herbicides: Mechanical methods of vegetation control are preferred to chemicals. If chemicals are used, individual plant treatment is preferred over broadcast treatment. The broadcast application of herbicides, either in spray or granular form, for site preparation and release is not preferred over other methods that are more selective in their control. Broadcast application may sufficiently control pest species, but this non-selective method impacts non-target, desirable species. However, even the individual chemical treatment of desirable hardwoods should not be practiced where the mast producing hardwood component is below that of recommended wildlife management guidelines and standards.

Broadcast application of herbicides is more suited for special uses such as maintaining rights-of-way and for the control of undesirable vegetation in special areas such as recreation areas and around facilities.

20 5. Aquatic biota: Each proposed method of vegetation management should address impacts on the major types of aquatic habitat (springs, streams, rivers, natural lakes and reservoirs) and the biota associated with each type. Specific questions that should be addressed are:

a. What impacts will each vegetation management practice have on State and Federal endangered or threatened species of aquatic life?

b. What changes can be expected in aquatic biotic assemblages and habitats within the forest and in downstream areas?

c. What provision can be made in each vegetation management practice to minimize the effects on endangered species and other aquatic assemblages?

(Continuation of Forest Service response)

19 Mitigation measures proposed in the draft EIS answer directly to this concern. See herbicide method mitigations 1-7 (pages II-48 to II-50 of the Draft EIS) and timber stand improvement mitigations 4-8 (page II-38 of the Draft EIS). As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

20 Mitigation measures to protect aquatic habitat and biota are in section II-E. Effects on aquatic habitat are covered in section IV-G (water). Since effects on water and aquatic life result from cumulative actions in a watershed, the "watershed analysis" section (pages IV-91-95 of the Draft EIS) is especially relevant. Effects on threatened and endangered aquatic species are assessed on pages IV-71-72 of the Draft EIS. In the Final EIS these sections have been clarified to more directly disclose effects on aquatic biota.

Alcock, A. 3

d. What mitigation measures are proposed for those biota and habitats that will be adversely affected by each vegetation management practice?

21 6. Recreational use: Each proposed method of vegetation management should address impacts on consumptive and nonconsumptive recreational use of both terrestrial and aquatic resources. Specific questions that should be answered include:

a. What will be the impacts of each management practice on each consumptive and non-consumptive use of terrestrial and aquatic recreational resources?

b. What measures are proposed for implementation by the U.S. Forest Service to mitigate adverse effects of each vegetation management method on consumptive and nonconsumptive recreational uses of these forest resources?

c. What types of management programs can be developed under cooperative arrangements between the U.S. Forest Service and the State agencies for the conservation and management of these recreation resources in the National Forests?

(Continuation of Forest Service response)

21 Effects on the recreation program are not within the scope of this analysis. However, effects on environmental or management components of recreation are (sections B through M of chapter IV in the Draft EIS). Only environmental effects (not effects on programs) are evaluated.

EXHIBIT B

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COMMISSIONERS

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TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 Smith School Road Austin Texas 78744

July 24, 1987

Mr. Steve McCorquodale
Leader, Vegetation Management
USDA Forest Service
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

Dear Mr. McCorquodale:

The Texas Parks and Wildlife Department is the state agency with primary responsibility for protecting the fish and wildlife resources of the people of Texas. The Department has previously commented on the U.S. Forest Service's proposed Environmental Impact Statement concerning vegetation management on the National Forests, both by letter dated March 18, 1987 and during the interagency meeting held in Austin on May 18, 1987. During this meeting, Mr. David Pritchard of the Department's Inland Fisheries Branch requested, and subsequently received, the draft list of species for risk assessment.

22 If the intent of the list is to provide indicator species which decline in population as a consequence of a decline in ecosystem health, several of the listed species have inadequate population densities and distributions. The numbers of an indicator species which can be reliably detected in the field should be sufficient for comparative sampling. The indicator species should also be widely distributed throughout the region of concern. Therefore, most of the endangered and threatened species on the current list do not qualify as indicator species. Also, ten of the fish and wildlife species listed do not occur in Texas; several others, such as the black bear (Ursus americanus), are only occasionally seen. As an example, the following species and categories of fish should be included in a listing of indicator aquatic species applicable to National Forests in Texas:

Indicator species sensitive to environmental perturbation:

Blacktail redhorse (Moxostoma poecilurum)
Freckled madtom (Noturus nocturnus)

(Continuation of Forest Service response)

22 The intent of the draft list of species for risk assessment was not that of providing indicator species. Rather, species were chosen to represent a broad range of taxonomic groups, food habits, habitat, and geographic occurrence. These species were then used to estimate risk of toxicity to wildlife from the application of herbicides. Appendix A describes this risk assessment process.

Recreationally or commercially important species:

Largemouth bass (Micropterus salmoides)
Spotted bass (M. punctulatus)
Crappie (Pomoxis spp.)
Channel catfish (Ictalurus punctatus)
Blue catfish (I. furcatus)
Flathead catfish (Pylodictis olivaris)
White bass (Morone chrysops)
Striped bass (M. saxatilis)

Localized salmonoid fisheries:

Rainbow trout (Salmo gairdneri)

Endangered species:

Paddlefish (Polydon spathula)

Any listing of indicator species, however, depends on the size of areas to be monitored. Department staff require more detailed information concerning specific monitoring methodologies, including associated "sample plot" sizes, before recommendations concerning a list of indicator species can be finalized.

Department staff appreciate the opportunity to continue this coordination and look forward to the receipt of the requested information.

Sincerely,

Susan Rieff
Director, Resource Protection Division

SKR:TDH:DP:FEP:fmd

cc:Mr. F. Dale Robertson, Chief, U.S. Department of Agriculture, Forest Service, Washington, D.C.
Mr. Mike Lannan, U.S. Department of Agriculture, Forest Service, Lufkin, Texas
Mr. John E. Alcock, U.S. Department of Agriculture, Forest Service, Atlanta, Georgia
Mr. Brent Ortega, Texas Parks and Wildlife, Jasper
Mr. Mike Krueger, Texas Parks and Wildlife, Lufkin
U.S. Fish and Wildlife Service, Houston
U.S. Fish and Wildlife Service, Fort Worth
Environmental Protection Agency, Dallas

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405 St. Catherine Apt. A
Lafayette, LA 70506
August 22, 1988

USDA
Forest Service
1720 Peachtree Rd. NW
Atlanta, GA 30367

Gentlemen:

I am writing in response to the draft environmental impact statement for vegetation management in the coastal plain or piedmont area. As one who enjoys hiking and camping in several areas of Kisatchie National Forest, I am concerned about the
1 possible use of herbicides in the forest. Even careful application introduces significant amounts of toxic compounds to the environment. Through overspray, runoff, and outgassing these compounds are spread further through surrounding areas.

Our national forests are a wonderful natural resource. Introduction of herbicides would reduce their value as natural preserves and recreation areas. I urge you to avoid the use of herbicides. If control of some plant species is necessary, this should be done by mechanical or biological means. Such an approach is the most responsible one for managing our public forests.

Thank you for your attention.

Sincerely,

Kathleen D. Knierim

Kathleen D. Knierim

Response to Comments in Letter No. 266

From: Kathleen Knierim

Comment No.	Response
1	We agree that at many times mechanical and biological methods may be the best techniques. However, based on site characteristics and species biological requirements, herbicides, prescribed fire, or manual methods may better achieve some project objectives. Site-specific analysis (described in mitigation measure number 1 on page II-35 of the Draft EIS) will determine appropriate techniques and intensity of their application for each project and will examine and evaluate a reasonable range of alternative methods, including the use of methods which do not involve herbicides. Additionally, scientific evidence presented in the Risk Assessment and the EIS supports the position that the herbicides evaluated in this EIS can be used as an effective, relatively risk-free tool in the forest environment. Mitigation measures for the use of herbicides (pages II-48-54 of the Draft EIS) including reduced application rates, emphasis on selective rather than broadcast use, buffering sensitive areas, etc. are all used to improve the relative degree of safety for workers, the public and wildlife, and to minimize adverse effects to non-target plants and the environment.

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DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
Atlanta GA 30333

August 23, 1988

Steve McCorquodale
Leader, Vegetation Management EIS Team
U.S. Dept. of Agriculture
Forest Service
Regional Office, Region 8
1720 Peachtree Rd., NW
Atlanta, GA 30367

Dear Mr. McCorquodale:

We have reviewed the Draft Environmental Impact Statement (DEIS) for "Vegetation Management In the Coastal Plain/Piedmont" and we are responding on behalf of the U.S. Public Health Service. Notably, this DEIS gives clear and high priority consideration of the impacts of vegetation management methods on human health and safety while thoroughly analyzing the impacts of the project on wildlife, aquatic animals, threatened and endangered species, vegetation, soil, water, air, rights-of-way, visual quality, cultural resources, wildfire, and social and economic conditions. This high priority assessment of human health and safety impacts is truly admirable in a major project of this scope.

The theoretical basis for potential impacts on human health is well documented in Appendix A, "Risk Assessment". As you have acknowledged on page V-7 of the DEIS, we commented earlier on a draft version of this Risk Assessment. In our earlier comments, we noted that the risk assessment effectively analyzes and ranks potential risks arising from the proposed application of the herbicides 2,4-D, 2,4-DP, dicamba, fosamine, glyphosate, hexazinone, imazapyr, picloram, sulfometuron methyl, tebuthiron, and triclopyr. Our major concern with the DEIS is the translation of the theoretical predictions of exposure and dose described in the risk assessment to practical work practices which truly reduce (or possibly eliminate) potential exposures in field settings. To more adequately document the strategies proposed to control exposures during field activities, the Final Environmental Impact Statement (FEIS) should include

1 specific recommendations for personnel protective equipment (respirators, clothing, etc.) as well as guidelines for proper fit, donning, removal, decontamination, as well as care and storage of this equipment.

At actual field sites, it is not reasonable to expect workers to make a consistently correct selection and use of protective equipment under

2 physically stressful field conditions. The FEIS should include more details of proposed management/supervisory practices which are planned to insure compliance with the proper selection and use of personal protective equipment in the field.

Response to Comments in Letter No. 267

From: David Clapp

Comment No.	Response
1	Specific guidelines for personal protective equipment use and maintenance are incorporated in the Forest Service's Health and Safety Handbook, Applicators Certification Training program, and field safety training sessions. Field supervisors provide direction and monitoring in cooperation with the forest and regional health and safety pesticide use coordinators.
2	This EIS has been prepared as an analytic document rather than an operations handbook. Requirements for the proper selection and use of personal protective equipment is the responsibility of field supervisors (through job hazard analyses and items listed in response number 1 of this letter). Workers are told what protective equipment is required for a particular project.

To orient and reinforce worker understanding of documented exposure control policies, training and reorientation on approved work practices should be offered at the beginning of the herbicide application period and at frequent intervals throughout the application period (including inspections for proper use, wear, contamination, etc.). Demonstration and training should be conducted at actual work sites to reflect representative working conditions. Supervisors should strictly enforce the proper wear and care of personal protective equipment at all times.

Thank you for the opportunity to review this DEIS. We hope that our suggestions are useful in the practical translation of the theoretical assessment of exposure risks to the actual minimization of exposure at field locations. Please insure that we are on your mailing list for the Final Environmental Impact Statement for this project as well as other documents which are developed under the National Environmental Policy Act (NEPA).

Sincerely yours,

David E. Clapp, Ph.D., P.E., CIH
Environmental Health Scientist
Special Programs Group
Center for Environmental Health
and Injury Control

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FRIENDS of the MOUNTAINS

25 August, 1988

To: USDA Forest Service
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

From: James Sullivan, president
Rt 4 Box 306
Toccoa, GA 30577

Concerning: Draft Environmental Impact Statement- Vegetation Management in the Coastal Plain and Piedmont

This draft EIS was reviewed by the advisory board of the Friends of the Mountains. The following comments were formulated.

The prefered alternative should be alternative C.

Reasons:

1. The National Forests in the Coastal Plain and Piedmont should provide the growing population with resources not available on private land. Alternative C favors primitive to semi-primitive settings. It also favors mid-late successional wildlife species. The National Forest land should be a very different place compared to private and industrial forest land which includes most of the commercial forest land. While page vi in Volume I mentions the acreage of National Forest land in the area covered, there is no indication of what percentage of the commercial forest land this represents. When planning on public land, this perspective is very important.

1

2. Aerial and broadcast application of herbicides is not permitted in Alternative C. Aerial application is currently suspended by the Chief of the Forest Service and should remain that way. Toxic chemicals should be dealt with in the most conservative manner.

3. Alternative C presents the lowest risk to long-term soil productivity. Treatments also produce less sediment than Alternative G.

4. Alternative C costs less per acre than Alternative G. Reduction of government spending is currently a very important issue.

5. Table II-3 in Volume I states that in Alternative C wildlife habitat treatments are allowed only to maintain populations. It is not necessary to restrict treatments for habitat, only the methods used are restricted. Habitat improvements can just as easily be made with the methods available in Alternative C, at lower risk to the present populations.

Response to Comments in Letter No. 268

From: James Sullivan

Comment No.	Response
1	The commenter's preference for alternative C has been included in the content analysis of all comments received. Alternative C does have some of the favorable effects listed, but also has effects (such as use of less effective treatments and inability to meet Forest Land and Resource Management Plan goals and objectives) considered unfavorable by other commenters. All alternatives have both favorable and unfavorable effects which are summarized on pages II-68 through II-73 of the Draft EIS and discussed in more detail in chapter IV, beginning on page IV-110 in the Draft EIS. See response to comments in Letter No. 14, Comment No. 1 regarding the appropriateness of national forest lands' outputs. Herbicides are dealt with very conservatively in every alternative except F and H (see response to Letter No. 97, Comment No. 2 regarding mitigations and modified alternative G). Differences in soil impacts between alternatives C and G are minute, and both alternatives produce very small amounts of sediment (see section IV-G.6 of the Final EIS). and although alternative C treats T&E habitat as fully as at present, treatments in other wildlife habitat are reduced by 20 percent.

page 2.

FRIENDS of the MOUNTAINS

Research Needs

2 Sixteen research needs were identified on page IV-130, Volume I. These cover all aspects of the forest environment and effects of various management techniques. It is important, especially on public lands, that these research needs be met before any intensive timber or vegetation management proceeds.

Need for recovery plans for threatened, endangered, proposed and sensitive species

3 This need should be met before any vegetation or timber management proceeds. These species became endangered because little was known about the effects of land management and manipulation on resident wildlife and plant communities. Since little is being done on private and industrial forest land to aid in species recovery, it is very important that this receives priority on public lands.

Risk Assessment

4 1. Acute toxicity is a poor indicator of the possible health and reproductive risks to wildlife by toxic chemicals. Exposure from aerial and broadcast applications may create risks about which we know nothing at all. Such applications will only add to our list of threatened and endangered species.

2. Page 7-9, Volume II presents wildlife ingestion doseages for ground application. It should include data for aerial and broadcast applications.

3. Page D-2, Volume II. Evaluation methods, #3. The list of scientific literature reviewed should be presented in this section.

Conclusion

What is most endangered by vegetation management, as well as intensive harvest methods, on our National Forests is the potential to have a few natural forest environments remaining in the future. This potential is gone from private and industrial forest lands. Only on our public lands can we see this potential realized.

Sincerely,

James Sullivan,
advisory board member, president
Friends of the Mountains

(Continuation of Forest Service response)

2 Regulations in 36CFR 219.28 require an ongoing process of identifying and prioritizing research needs. Regulations of the Council on Environmental Quality for implementation of the National Environmental Policy Act recognize that all necessary data may not be available and that management may continue as research is done. Monitoring specified in section II.E (pages II-35 to II-54 in the Draft EIS) should assure that adverse impacts are held to a minimum.

3 Management requirements and mitigation measures 1 and 2 on pages II-35 through II-37, numbers 2 through 5 on page II-48, and numbers 7 and 8 on pages II-49 and II-50 of the Draft EIS protect threatened, endangered, proposed, and sensitive species while recovery plans are being developed. Work on recovery plans is ongoing.

4 Acute toxicity is one essential link in the chain of data needed to establish degree of risk posed by a particular herbicide. Throughout the EIS we concur with your conclusion that there are data gaps, however, through the use of anlogous animals we have determined that there is not a reasonably foreseeable risk of adverse effects to general wildlife from the use of herbicides applied at within the mitigated program as described in chapter II (pages II-35 to II-54 of the Draft EIS). See also response to comments in Letter No. 150, Comment Nos. 20 and 23.

Regarding your point number 2, these ingestion dosages are for ground broadcast application (Hoerger and Kenaga 1972). Aerial application would cause similar levels of exposure.

Regarding your point number 3, the references are listed in chapter IX of Volume I of the Draft EIS.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUG 24 1988

4PM-EA/HJM

Mr. John E. Alcock
Regional Forester
U.S. Department of Agriculture
Forest Service
1720 Peachtree, N.W.
Atlanta, Georgia 30367

SUBJECT: Draft Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont
EPA Log No.: D-AFS-E65036-00

Dear Mr. Alcock:

The Environmental Protection Agency (EPA) pursuant to Section 102(2)(C) of the National Environmental Policy Act and Section 309 of the Clean Air Act has reviewed the Draft Environmental Impact Statement (DEIS) for Vegetation Management in the Coastal Plain/Piedmont regions of the southeast. We believe that this DEIS generally does a good job in documenting alternative means of vegetation management and their resultant impacts. However, we have identified a number of concerns and issues which should be addressed further in the FEIS.

Herbicide Application

Generally we are satisfied with the U.S. Forest Service's (FS) approach to the categorization of herbicides and inerts by their potential level of risks to human health and the environment. As recommended by the DEIS, those with least risks commensurate with their effectiveness should be used. Because of the ongoing EPA reviews, periodic updating of acceptable chemicals is very important. In addition, the FS will have to comply with individual State requirements for herbicide use and application.

1 Water Quality: The impact of herbicides on water quality is of primary concern. The preferred alternative G, will increase the number of acres treated with herbicides from 27,000 to 49,500, an increase of 83%. Additionally, this alternative requires the aerial application of herbicides, a practice which is currently suspended by the Chief of the Forest Service. The aerial applications will be mostly for rights-of-way (ROW) maintenance. Of the 49,500 acres to be treated with herbicides, 7,000 acres, or about 14%, are scheduled for aerial applications. Also of concern are the herbicides to be used. Some herbicides which have along half-life, high solubility in water, and low adsorption rates, are more likely to create water quality problems.

Response to Comments in Letter No. 270

From: Heinz Mueller

Comment No.	Response
1	Alternative G has been modified in the Final EIS, reducing total herbicide acres to 39,500, (approximately 7 percent of all vegetation treatments) reducing aerial acres to 2,500, and stressing selective over broadcast application techniques. These changes, especially in aerial application, will greatly reduce potential herbicide entry to surface and ground water. Current suspension of aerial application by the Chief was in response to concern that NEPA documentation was inadequate. Where documentation has been found to be adequate (USDA Forest Service Region 4 Noxious Weed Program), and environmental risks low, aerial application has been reinstated.

We would like to offer the following suggestions to minimize the effects of herbicides on water quality.

2 • Herbicides should be selected which have short half-lives, low solubility in water, and high adsorption rates. All three characteristics are preferable, but not required. Certain herbicides (e.g., tebuthiuron) because of their nonselective characteristics and long half-life should be avoided.

3 • Herbicides should only be applied under most favorable weather conditions (i.e., low winds, no precipitation forecast).

4 • Buffer zones should be strictly adhered to, particularly for aerial applications. The proposed 100-foot buffer from water sources may not be sufficient to address drift, accidental releases.

5 Endangered Plants: Endangered plants are prevalent in forest and range/grasslands. Section 7 of the Endangered Species Act prohibits any action carried our by a federal agency which threatens endangered species or their habitat. The use of herbicides in forest and grasslands would require consultation with the Fish and Wildlife Service to identify habitats of endangered plants. The use of 300-foot aerial or 60-foot ground application buffers may not be adequate safeguards.

6 Endangered Animals: Rationale should be given for the selection of the three species selected for analysis of potential impact and why a fresh-water aquatic invertebrate was not selected.

7 Worker Protection: EPA is proposing revisions to its "Worker Protection Standards for Agricultural Pesticides" (40 CFR Part 170). In this revision, EPA is identifying active ingredients in agricultural pesticides potentially subject to reentry restrictions under proposed regulation (40 CFR 156K). Many of the active ingredients to be used in this EIS are being considered at this time for restrictions.

8 Groundwater: As with endangered species, States will have their own groundwater strategies to keep agricultural chemicals out of groundwater. These plans may vary from state to state as to restrictions imposed on the use of certain chemicals. The FS will have to coordinate their herbicide use with the State Plans to ensure compliance.

Inerts: EPA has an ongoing review of inerts and at this time there is no date for completion of the review. EPA considers inerts in List 1 or 2 to be priority chemicals with most of the attention focused on those chemicals.

2 Mitigation measure number 6 on page II-49 of the Draft EIS addresses this concern.

3 Mitigation measure number 15 on page II-51 of the Draft EIS addresses this concern.

4 See response to comments in Letter No. 70, Comment No. 3.

5 The requirement for 300- and 60-foot buffers is based on predictions of drift and runoff modeled in the Risk Assessment (appendix A) and is consistent with proposed regulations issued by EPA concerning "forestry cluster" herbicides. As stated in chapter II of the Draft (page II-37) the need for consultation with the Fish and Wildlife Service will be determined during site-specific analysis which is required. An individual analysis may result in restrictions that are more stringent than those required by the vegetation management EIS.

6 See responses to comments in Letter No. 73, Comment No. 163; and Letter No. 265, Comment No. 20.

7 We recognize that the EPA is currently working on several different projects which will directly bear on the mitigations imposed to protect workers, the public and the environment. As standards are finalized they will be included in this document or in additional documentation as appropriate.

8 Coordination with states to ensure compliance with their ground water strategies has been added to the Final EIS as a mitigation measure (page II-60).

9 Aerial Application: Because of the possibility of drift, exposing non-target organisms to herbicides, specifc sites, rates, and times should be addressed in the FEIS. Questions and concerns arise regarding the aerial application of herbicides as prescribed in alternative G. Aerial applications to ROW's presents the highest risk for direct application to streams because the linear flight path crosses many streams (page IV-85). Also, the DEIS does not specify what types of ROW's will be treated. Because roads are highly conducive to ground treatments and the risk of accidental human exposure by aerial application is significant, they should be eliminated from consideration for aerial treatment. Other ROW's, e.g. power lines, when crossing terrain which is unsuitable or difficult for ground applications, may be acceptable targets for aerial applications of herbicides. However, aerial applications should be viewed as a "last-resort" type of action and then only under the most controlled conditions, such as:

10 • Herbicides with long persistence periods should not be applied to areas which would then be susceptible to high levels of erosion.

11 • Herbicides with long half-lives should not be used in aquifer recharge zones.

Water Quality

The impacts of sediment produced by vegetation management on water quality is a concern. The management direction away from the use of intensive mechanical techniques, e.g., root raking, etc., which is evident in this DEIS is highly desirable because of the reduction of non-point source pollution. The resultant decreases in sediment load from the existing levels of 1,610 tons are predicted for both Alt. G., 1,030 tons and Alt. C, 620 tons. This is due in part also to a lower number of acres receiving mechanical treatment.

We would like to offer these suggestions to further minimize the effects of sediment on water quality:

12 • Controlled burns should be conducted in such a manner so as to be classified as "low" in severity of burn.

13 • Buffer zones or Streamside Management Zones should be established or maintained around all surface water bodies and intermittent streams to avoid streambank erosion.

14 • Streams should not be utilized for firebreaks.

15 • Best Management Practices should be used to control sediment from all road building activities and harvesting operations.

9 Mitigation measure number 4 on page II-48 of the Draft EIS contained the following statement: "Application rate and work time will not exceed those shown as typical (tables 4-4 through 4-6, appendix A) unless a supplementary assessment of risk establishes that proposed rates will not cause unacceptable risk...." Mitigation measure number 7 broadly addresses the timing concern; however, site specific analysis is inappropriate in a programmatic document. Tables added to the description of alternatives (section II-B) indicate which ROW's may be aerially treated.

10 Use of tebuthiuron (392-day half-life) may permit serious erosion on erodible sites. The other herbicides have half-lives of 10-63 days, are 98-100 percent degraded within 1 year, and result in negligible risk. Mitigation measure nubmer 6 restricts the use of herbicides with half-lives over 3 months (see page II-49 of the Draft EIS).

11 Ground water modeling (page IV-87 of the Draft EIS) showed that tebuthiuron has the most potential to move offsite due to its extreme persistence, but modeled concentrations in shallow ground water under the treated area never reached 0.010 ppm. However, to increase margins of safety for ground water, mitigation measure number 26 (on page II-53 of the Draft EIS) has been strengthened to restrict the use of herbicides with half-lives over 3 months in aquifer recharge zones.

12 Light burns just scorch litter and expose almost no soil. Moderate burns char litter and duff and expose little soil. Both pose minimal risk to water quality (pages IV-90-91 of the Draft EIS). Severe burns are not permitted in the preferred alternative in the Final EIS.

13 Such buffers are required by mitigations presented on pages II-39, II-44, II-47, and II-53 of the Draft EIS.

14 Streams may be used as firebreaks only if low-intensity fires with flame lengths of less than 2 feet are backed into the filter strip (mitigation measure number 6 on page II-44 of the Draft EIS). Such fires retain good ground cover and do not kill roots of woody understory plants that stabilize banks. In most cases, the sediment impact of this practice is far less than building a fireline that exposes mineral soil within the filter strip.

15 Roads and timber harvest are outside the EIS's scope. BMP's for such actions are included in Forest Land and Resource Management Plans.

16 • Livestock grazing should be managed so as to prevent access by livestock to stream channels. Also, contract provisions to prevent overgrazing should be properly enforced. (In Texas and Oklahoma, 20-30 years of continuous overgrazing increased sediment yield by 10-26 times above moderate rotational grazing (page IV-90.)

Wetlands

17 Vegetative management has been used in the past to reduce competition or alter the stand composition by forest managers. This has resulted in a reduction in wetland acreage through vegetative change or direct conversion of wetlands to upland sites. The conversion of wetlands is a major concern of EPA in both cases and the FEIS should address the potential impacts these changes have on wetlands, wildlife, and water quality. These assessments should be done for each alternative, however, the mechanical methods should receive the greatest effort. This recommendation is based on the fact that mechanical treatments results in the movement of dredge and fill material into the wetland during site preparation, thus altering the hydrology of the site and dominant vegetative species. Also, we would like to see a commitment made to wetland protection and to no conversion of wetlands (wetlands acreages used in the DEIS appear too low). We desire to work with FS to develop Best Management Practices to minimize wetland disturbances from vegetative management activities.

Air Quality

18 We understand that prescribed burns are an important tool for vegetation management. Based on the information provided we are reasonably assured that Alternative G as well as Alternative C will meet national ambient air quality standards. However, localized factors and weather conditions will have to be considered in timing and management of prescribed burns. In addition, State requirements will have to be met and appropriate permits obtained.

Based on the DEIS, periodic low-intensity burns can reduce the risk of destructive wild fires without depleting the soil of nutrients. However, frequent and/or intensive burns appear to result in nutrient loss and increased water and air quality impacts.

Alternatives

The DEIS has delineated a series of management alternatives which entail a varying mix of available methods and tools. Treatment acreage also ranges among alternatives from 0 acres for Alternative A to 801,000 acres for Alternative H. These varying levels and combination of treatment methods result in different management benefits and degrees of potential adverse environmental impacts.

(Continuation of Forest Service response)

16 We agree that mitigation measures are needed to protect soil, water, and vegetation resources when grazing is used as a biological control; and in the Draft EIS, on page II-54, mitigation measures 1, 2, and 3 specifically address this concern.

17 Mitigation measures that require buffers around wetlands and prohibit deposition of soil and debris in them (pages II-44, 47, 53 in the Draft EIS). Mitigation measures to control sediment (pages II-39, 44, 47 in the Draft EIS) protect wetlands from upstream actions. Effects are analyzed in chapter IV, section IV-G (water) in the Draft EIS.

18 Mitigation measures (page II-44-45 in the Draft EIS) require coordination with states and consideration of fuel and weather factors to limit smoke output and control smoke effects. The preferred alternative in the Final EIS does not allow severe slash burns, or underburns more often than every 3 years except in habitat for red cockaded woodpecker (page II-9 in the Draft EIS), or to meet other specific needs.

19 Based on the FS overall management objectives, we understand the preference for Alternative G. However, from EPA's perspective Alternative C would appear to be the environmental preferrable option since it provides vegetation management with lower environmental impacts. Specifically, Alternative C is predicted to result in lower air and water quality impacts than Alternative G. Sediment production levels for Alternative C are predicted to be 620 tons per year versus 1030 tons for Alternative G. Furthermore, the lower reliance on herbicide use (17,000 annually treated acres for Alternative C versus 49,500 acres for Alternative G) should pose lower risks to the public, applicators and endangered species. Additionally, Alternative C since it does not include any aerial application of herbicides would limit the risks of accidental application to water bodies and non-target species, thus making it, in our opinion, the more prudent option.

Based on the foregoing concerns with air and water quality, and herbicide use we rate this action EC-2, environmental concerns have been identified which should be addressed in the FEIS. Because of the evolving nature of groundwater protection and endangered species guidelines, we believe, it is important for a process to be established for ongoing consultation with the States, EPA and the US Fish and Wildlife Service to ensure the regulatory compliance of the management measures.

We appreciate the opportunity of participating in this important Forest Service action. If you have questions concerning our comments, please call 404/347-5014.

Sincerely yours,

Heinz J. Mueller

Heinz J. Mueller, Acting Chief
NEPA Review Staff
Environmental Assessment Branch

19 The commenter's preference for alternative C was included in the content analysis of all comments received. Each alternative has favorable and unfavorable effects. Alternative C, despite the effects listed as positive by EPA, has effects such as not meeting output objectives of Forest Land and Resource Management Plans, and the use of less effective treatments on many areas. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the draft EIS.

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RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? yes Do the Alternatives respond to your concerns? yes

Comments on Scientific Analysis:

1 I AGREE WITH ALT G AS BEING THE MOST EFFECTIVE ALT TO ACHIEVE DESIRED RESULTS.

Why?

—

Comments on Alternatives:

2 I'M STILL NOT CONVINCED THAT USE OF THE NECESSARY HERBICIDES (TO ACCOMPLISH ALT G) AND AERIAL APPLICATION, ETC. IS NOT DAMAGING TO OUR ENVIRONMENT. IE: PAGE IV-126 PARA 2 LAST PART AND PAGE IV-130 ITEM 13, 14 & 16.

Why?
OUR FRAGILE ENVIRONMENT IS HAVING ENOUGH TROUBLE ALREADY.

Other:

3 THIS EIS IS TOO LENGTHY - MUCH REDUNDANCY IS EVIDENT. THE SAME POINTS/COUNTERPOINTS COULD BE DECLARED WITH HALF THE VERBAGE!

Why? THE AVERAGE RESPONDENT DOES NOT HAVE 160 HOURS AVAILABLE FOR FREE.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

KEITH A BRELAND
Name: First MI Last
RT 1 Box 453
Street
BROOKLYN, MS. 39425
City State Zip Code

Response to Comments in Letter No. 271

From: Keith Breland

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received.
2	Based on the newer technology used in herbicide application and the lower rates of less toxic herbicides used, our analysis of the data indicates that the herbicides evaluated can be aerially applied in a low-risk manner to humans and wildlife. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.
3	The interdisciplinary team views its writing assignment as equal in importance to the analysis. Good communications is a top priority. While many reviewers commented that this very complex technical subject has been handled very well, some may still find it overly complex. The summaries on pages iii through xvi of the Draft EIS attempt to address this problem.

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RAY MABUS
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Executive Director

Commissioners

S T Rayburn
Chairman
Oxford

Michael E Goff
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Henry K Hillman
Ocean Springs

David New Jr
Natchez

Champ Terney
Indianola

23 August 1988

Mr. John E. Alcock
Regional Forester
USDA Forest Service
Southern Region
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

Re: Draft Environmental Impact Statement
Vegetation Management in the Coastal Plain/Piedmont

Dear Mr. Alcock:

The draft Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont is an important and complex document, particularly with regard to the herbicide risk assessment to humans, wildlife and aquatic species. Your staff are commended for their efforts to assess these risks using guidelines recognized by the National Research Council and the Environmental Protection Agency. Our comments primarily concern the effects of herbicide use on wildlife and biological resources.

Herbicide Risk Assessment

1 As noted in the document, an overwhelming data gap on herbicide effects to wildlife as well as inconsistencies in available data resulted in considerable uncertainty. Overall, the DEIS presents a good attempt to assess the toxicological risk of herbicides, but the study is flawed by a significant lack of data and inappropriate conclusions from models used to compensate for the lack of empirical information. In the absence of empirically derived data, models provide an important heuristic method to investigate and generate hypotheses. The extrapolation from the model to an actual wildlife risk assessment is an acceptable hypothesis, but to conclude that the risk is acceptable for the use of herbicides is an erroneous use of models. To fill all data gaps is recognizably an extremely expensive and prohibitive process, but models which use virtually no data do not substitute for the lack of data (i.e. "Modeling is done to overcome missing or unavailable data." [IV-51]).

2 The mutagenicity and toxicity of 2,4-D, 2,4-DP and light fuel oil and the carcinogenicity of 2,4-D, 2,4-DP, glyphosate, and picloram is a serious concern. The absence of data on most of the inert ingredients is also serious, especially considering the history of dioxin as one of the "inert" by-products of 2,4,5-T (Agent Orange). 2,4-D should be discontinued due to the low margin of safety to workers, especially those using backpack sprayers. Similarly, the low MOS for tebuthiurin strongly suggests that the compound not be used. Instead of attempting to mitigate the "unacceptable health risks" (IV-14) of 2,4-D, 2,4-DP and tebuthiurin with protective clothing, these

Response to Comments in Letter No. 272

From: Vernon Bevill

Comment No.	Response
1	See response to comments in Letter No. 150, Comment No. 20. The model is a reasonable representation of the significant parameters that influence wildlife exposures and is a rational method to assess their risks. All predictive models, no matter how well founded in data, involve a hypothesized relationship.
2	Due to the fact that there is uncertainty about the cancer-causing potential of picloram and glyphosate, both were analyzed in the Risk Assessment (appendix A, section c) using the worst case assumption that they could cause cancer. Projections in the Risk Assessment for future use were made to provide an analytic framework within which to analyze data. The Risk Assessment showed some undesirable margins-of-safety assuming these analytic parameters. Subsequent to this analysis mitigations were proposed in the preparation of the draft EIS which reflect the findings of the Risk Assessment. Mitigation measure number 6 on page II-49 of the draft EIS recognized the concern with 2,4-D, 2,4-DP, and tebuthiuron and implies that they would be used very rarely at most, even with the required additional mitigation. Additional mitigation for 2,4-D and -DP would necessarily be for worker safety while those for tebuthiuron would be for both worker safety and for environmental protection. Relative to specific concern mentioned about dioxins, see Letter No. 174, Comment No. 4.

herbicides should be replaced with other less toxic formulations. According to the "Typical and maximum anticipated number of acres treated per year in Region 8" (Table 4-2), 2,4-D is relatively widely used and should be decreased due to unacceptable health risks. As for other herbicides, it is misleading and incorrect to state that "There is no evidence to show that any of the other chemicals could cause cancer." (IV-20). Comments such as this cast doubts on the credibility of the entire document, particularly when data relating to fosamine, triclopyr, and limonene do not exist. There is no evidence to show that these chemicals do not cause cancer.

3

Although the purpose of the herbicide risk statement was to document probable effects of herbicides on human health, wildlife and aquatic species, the lack of data seriously impaired the assessment. The portrayal of wildlife exposure estimates as "realistic" (7-3) is inaccurate. The inhalation exposures, dermal exposures, and ingestion doses were estimated predominately with the use of assumptions and models with very little empirical support. For example, the amount of herbicide ingested from contaminated food and grooming as well as the indirect dermal dose calculated from vegetation contact percentage, animal class movement adjustment factors, and dermal penetration adjustment factors were all heavily based on a questionable relationship to animal body weight. The DEIS extends an empirically determined relationship between home range and body weight to assume that larger animals are less likely to feed on contaminated food due to a larger home range than smaller animals. Although it is true that home range and body weight are allometrically related by the equation $H = aW^k$, the value of the exponential relationship is controversial (see Harestad and Bunnel. 1979. Home range and body weight-A re-evaluation. Ecology 60(2):389-402, Lindstedt, et. al. 1986. Home range, time and body size in mammals. Ecology 67(2):413-418; Swihart et. al. 1988. Relating body size to the rate of home range use in mammals. Ecology 69(2):393-399.) The relationship of home range to body weight can vary due to trophic status (herbivores, omnivores and carnivores), social structure, age, sex, and habitat productivity. Moreover, time is a critical function of home range use.

4

The DEIS relies excessively on an oversimplification of the relationship to body weight and home range. Consequently, the biological realism of such deterministic equations as $PFC = 100 \times (1/(BWT)^{.2}$ which were used to measure the percentage of herbicide contaminated food consumed are seriously questioned. Considering the exponential variation of similar allometric relationships identified during empirical studies, the determinism of the DEIS models fails to account for uncertainty, i.e. how would the herbicide dose to animals change with a small change in exponential values and how would the calculated dose compare to the 1/5 LD values? The origin and rationale for the equations used to calculate animal's vegetation contact percent (VCP) and percent of body surface groomed (PBG) were not explained or substantiated. Similarly, the derivation of the values employed for dermal penetration factor by animal class and animal class movement adjustment factors (MVF's) were undefined. These factors were important modeling variables utilized to predict exposure levels. Moreover, conservatism used in estimating wildlife doses (8-4) does not, as claimed, adequately compensate for the "uncertainty in the toxicity data base", especially when unspecified assumptions and equations without substantive data are used to estimate dosage.

5

(Continuation of Forest Service response)

3 The first and second sentence in the paragraph starting "There is no evidence..." (p.IV-20 in the draft EIS) will be reversed in the Final EIS to avoid further confusion.

4 See response to comments in Letter No. 150, Comment Nos. 20 and 23. The models use simple, reasonable assumptions to estimate doses. They are not intended to reflect all of the variabilty between species or within species in all parameters. That degree of detail is beyond the scope of the Risk Assessment and would not likely change the results significantly.

5 The models are simple and do not reflect all of the biological realism you suggest they should. That degree of realism is not necessary for this kind of evaluation. The conservatism built into the parameter estimates almost assuredly does overestimate wildlife doses. In fact, use of these herbicides has not been associated with any significant wildlife losses. See also Comment No. 4 of this letter.

No data were available on the 14 herbicides and additives for amphibians and reptiles. Even though the "...toxicity of herbicides to wildlife varies among individuals of the same species (intraspecific), between different species (interspecific), and often most markedly, between different classes of animals" (8-1), mammal toxicity data were used as surrogates to both amphibians and reptiles.

The validity of any model is solely dependent upon an evaluation of the assumptions and parameter levels employed. The utility of the models used in estimating wildlife dosage could have been more adequately evaluated with additional background information. Finally, models serve as an important exploratory tool especially when the model is examined with varying levels of the parameters or under different assumptions. The assessment could have
6 been improved by examining the "sensitivity" of the model and risk assessment to changes corresponding with different parameter levels and assumptions.

The discussion and definition of "bioaccumulation" of herbicides (IV-22) which emphasizes that bioaccumulation occurs when a chemical is "absorbed in the
7 body at a greater rate than it is eliminated" avoids the fact that tissue retention studies have demonstrated the presence of herbicides. Erne (1974) found herbicide residues from .05-6 mg/kg in liver and kidney tissue from 250 wildlife samples in Sweden! Although elimination rates of herbicides examined in other studies varied from 100 percent to 74 percent over a test period which did not exceed 4 days, these studies alone do not substantiate the conclusion that herbicides "present a very low risk for bioaccumulation" (3-25). The DEIS did not address the relationship of long-term persistence of herbicides in the food chain "Because the herbicides...show no tendency to bioaccumulate..." (8-2). Despite the technical definition for bioaccumulation, the simple fact that herbicides can be retained in wildlife tissues is a strong indication that persistence in food chains should have been examined in the risk analysis.

Plant and Animal Diversity

8 Potential negative effects of proposed actions on plant and animal diversity is one of the issues that the DEIS was to address (I-5), but this issue is not directly addressed. All that is offered is a brief assessment of the relative effects of the different alternatives, a statement that harvesting practices have a more significant effect than subsequent site preparation activities, and a statement that the combination of vegetation management and timber harvesting "increases over-all or 'among-stand' wildlife diversity even though 'within-stand' diversity for a particular site may decrease" (IV-48). If species are eliminated from a particular stand, this decreases diversity at all levels of measurement. The idea that management activities can increase "among-stand" diversity is untenable. Management practices tend to group stands into a limited number of forest or vegetation types and each type is managed according to specific guidelines. Species diversity is a natural, self-augmenting evolutionary phenomenon. The presence of threatened and
9 endangered species on National Forests is direct evidence that standard forestry management practices decrease diversity, particularly for species with narrow ecological tolerances. Continued use of herbicides has been shown to reduce plant species diversity and alter vegetation structure. There is evidence from long-range studies that use of herbicides to control vegetation

6 The models were deterministic and conservative in nature. The doses would no doubt change greatly if parameters were changed, but this technique is geneally appropriate for stochastic models that use statistically distributed data. The exercise is not believed necessary for this analysis because realistic and extreme doses are estimated that would cover the range of possible doses.

7 The herbicides were found in the kidney and liver because those organs function in metabolizing them. Bioaccumulation refers to their retention in other body tissues for long periods of time. The levels in the kidneys and liver indicate only that the animals are effectively eliminating, not accumulating, these herbicides.

8 As indicated on pages I-6 and 7 of the Draft EIS, issues such as silvicultural systems, harvest cutting methods, and landscape-wide diversity were addressed in Forest Land and Resource Management Plans (prepared under 36 CFR 219) and are outside the scope of this document. However, this EIS is prepared to conform to the requirements of the National Environmental Policy Act and as such it displays effects of vegetation management methods that may be used to implement Forest Land and Resource Management Plan goals and objectives on Coastal Plain/Piedmont forests for the programs detailed in section I-A. Pages IV-30 to IV-72 of the Draft EIS specifically display the effects of vegetation management on plant and animal communities. Mitigation measures, such as numbers 1 and 2 on pages II-35 to 37; numbers 15 and 17 on page II-41; numbers 12 and 13 on page II-45; numbers 2 and 5 on page II-48; number 8 on page II-49 and 50; and numbers 1, 2, and 3 on page II-54 of the Draft EIS are specifically designed to protect and in many cases enhance plant and animal diversity.

The part of the wildlife discussion you refer to is part of the introduction to the wildlife section, and is intended to be a general discussion of effects to wildlife species and their habitats. Following that introduction, each method contains specific discussion on the direct effects of each method on animal species, their habitat, and population diversity. The purpose of vegetation management is to reduce, not eliminate plant competition and to provide a wide variety of plants and habitat conditions beneficial to wildlife.

9 In the Coastal Plain/Piedmont region, the conversion of large areas of forest land to cropland, the effects of industrial development, the increased growth of the human population, and resultant expansion of cities and towns, have greatly reduced the habitat for many species, some of which (those with narrow tolerances) became threatened or endangered. Other important stress factors include wetland conversion, fire suppression, and some forestry practices. National forests are managed to provide a variety of habitats, some of which are essential to the continued existence of some threatened and endangered species. Many Coastal Plain species evolved in a disturbance-related environment. For these species, some forestry practices and vegetation mangement methods mimic the natural disturbances essential for continued species viability. Figure D-1 of the Final EIS traces the process required to ensure adequate assessment of potential harmful effects to threatened, endangered, proposed, and sensitive species regardless of method used or treatment location. Mandatory mitigation measures in chapter II of the EIS regarding inventory and site-specific analysis requirements; and herbicide selection, handling, application rates, and application method selection will adequately protect these species from adverse effects whether the project is located in the general forest area or a right-of-way.

in utility rights-of-way has resulted in extirpation of species, particularly legumes such as Cassia which are important quail forage (Jeanne Hartley, MSU Wildlife Department, personal communication).

Rare, Threatened and Endangered Species

Seven federally threatened or endangered species are known to occur on National Forests in Mississippi. Of most concern is potential adverse effects
10 to the gopher tortoise. The dosage estimates are at least an order of magnitude different between the gopher tortoise and the Eastern box turtle for the eleven chemicals presented in Tables 8-4 to 8-15. The data presented in Table 7-2 do not seem to account for this difference. It is alleged that the gopher tortoise will not be impacted because of its thick carapace and its low metabolic rate. Both of these characteristics are also true of the box turtle. The DEIS assumes 18% of the food of the herbivorous gopher tortoise would be contaminated while 33% of the omnivorous box turtle would be. Also, it is stated that 11% of body surface contacting vegetation for the gopher tortoise versus 36% for the box turtles. The assumptions made to generate these numbers from the various models are never discussed and should be re-examined. Some factors do not seem to have been considered. An individual tortoise may be impacted many times because of the species longevity and because of its tendency to occupy rights-of-way along roadsides in and near clearcuts and young pine plantations on suitable soils (Mississippi Natural Heritage Program data). The longevity of the tortoise must also be considered in terms of the bioaccumulation of potential toxins. We support the use of prescribed fire in managing gopher tortoise habitat, since the species is specifically adapted to this natural process. We strongly suggest that no
11 herbicides be used in or within 5 chains of any suitable gopher tortoise habitat including roadside rights-of-way.

Also of major concern is the red-cockaded woodpecker since the National Forests in Mississippi contain the vast majority of cavity trees in the state. The DEIS recognizes the potential adverse effects of 2,4-D and 2,4-DP on this species. It also recognizes the utility of direct methods such as injection in mid-story hardwood control. Direct methods which do not impact non-target species can be important management tools, and mid-story hardwood control is a very necessary management goal in red-cockaded woodpecker habitat.

Lindera melissifolia, pondberry (swamp spice bush), is the only federally listed plant species occurring in Mississippi. The statement is made that pondberry habitat is improved by prescribed fire (D-7). Few if any bottomland
12 species are adapted to fire. Only one population, in Arkansas, has been burned, and the population suffered extremely adverse effects (Cary Norquist, USFWS, personal communication). Since all plant species can be affected by herbicides, no herbicides should be used in habitats containing any populations of endangered, threatened, proposed, candidate or sensitive plant species.

It is difficult to understand why Peltandra sagittaefolia, Pinguicula primuliflora, Pieris phillyreifolia, Utricularia purpurea, and Stewartia malacodendron would not be impacted (Table III-8), and how Pinguicula primuliflora is affected while Pinguicula planifolia is not.

(Continuation of Forest Service response)

10 The analysis assumes that food items apart from vegetation are contaminated; so an omnivore may be receiving as much, if not more, herbicide than an herbivore. The fraction is based on home range; it is more likely that gopher tortoise, ranging widely, would feed less on any one sprayed site than a box turtle. The herbicides, as discussed in Comment No. 7 of this letter, do not bioaccumulate. They are rather rapidly metabolized.

11 There are no data to indicate that any of the herbicides analyzed in the Risk Assessment pose a significant risk of toxic effects to gopher tortoise. As with fire, appropriate herbicides, when used properly, may improve gopher tortoise habitat.

12 Our statement that fire benefits Lindera melissifolia was incorrect. Table D-7 has been changed accordingly. Table III-8 in the Draft EIS has also been changed in the Final EIS to show that all species potentially may be affected. This table has been moved to appendix E in the Final EIS. See also Letter No. 312, Comment No. 7, regarding herbicide use in habitats containing populations of endangered, threatened, proposed, and sensitive plant or animal species.

Soils and Ground Water

13 One aspect of soil and ground water effects of herbicide use is not addressed. Pitcher plant bogs and similar natural communities are habitat for one candidate species (Lindera subcoriacea) and at least six sensitive plant species. These communities are often the product of seepage slopes. The potential concentrations of herbicides or toxic by-products from use in adjacent forest stands could be a significant toxic input to such wetland ecosystems.

Prescribed Fire

We consider prescribed fire to be a very important management tool, especially in lower Coastal Plain vegetation types. Bogs, savannas, pine-scrub oak communities, tall-grass prairies (which occur in Mississippi in the Bienville NF) and other types can be benefited by a fire program. A program of prescribed burning which mimics the natural fire regime should be used to maintain these communities. These burns should be on a 2-3 year cycle and should not always be at the same time of year. A combination of growing season and non-growing season burns should be alternated in the management plan. An occasional hot, growing season burn may benefit some species.
14 Natural fire breaks should be used if at all possible. No fire lane should be dug in these communities. In bogs and savannas, fire lanes can act as a drainage and eventually destroy the original character of the community.

Other Comments

15 The idea that delaying use of herbicides until more tests are performed will adversely affect the public (IV-10) is not justified considering that other techniques such as mechanical methods and prescribed fire are still available to land managers.

16 The statement that there may be means for natural re-establishment of isolated plant populations is inaccurate (IV-71). We assume that this was a typographical error.

Preferred Alternative

The proposal to increase use of herbicides on National Forests under the DEIS preferred alternative represents a new dimension of herbicide use when important biological and environmental questions remain to be answered. National Forest lands represent significant wildlife habitat on which vegetation can be effectively managed without the risks and uncertainties associated with an expanded herbicide program.

17 Our preferred alternative would involve herbicide use at no more than current levels and use of prescribed fire at no less than current levels. We prefer Alternative E with lower levels of herbicide use and slightly higher levels of prescribed fire use. This alternative favors wildlife and other resource values which we have previously addressed in comments on the Land and Resource Management Plan. The resource goals and objectives proposed in the Forest Plan for Mississippi can be fully achieved without the use of herbicides.

(Continuation of Forest Service response)

13 Mitigation measure number 27 (page II-53 of the Draft EIS) includes these special wetlands. The text in the Final EIS, has also been revised to directly address these areas.

14 We agree. The Forest Land and Resource Management Plan for the National Forests in Mississippi and the preferred alternative in the Draft EIS provide standards and guides and mitigation measures that allow this type of treatment. Average fire treatment frequencies vary from 2 years (T&E species) to 4 years (fuels, and other wildife habitat) in the preferred alternative in the Draft EIS. Growing and dormant season burns are allowed; however, they are not allowed on the same site more than twice in succession without an intervening dormant season burn in order to protect wildlife and prevent soil damage (see mitigation measure number 13 on pages II-45-46 of the Draft EIS). Mitigation measures 7, 8, and 9 on page II-44 are intended to prevent fireline scars which may be slow to heal in wetlands and savannahs. Use of plowed firelines will be a rare, case-by-case exception in bogs and savannahs.

15 There are applications where neither fire, manual nor mechanical methodologies are as effective as are herbicides. Manpower to reenter areas to perform jobs more frequently when other less effective methods are used cause adverse effects on human populations through the reduction of efficient production of goods and services.

16 You are correct. The text in the Final EIS has been corrected.

17 The commenter's preference for alternative E was included in the content analysis of all comments received. Alternative E does have some of the favorable effects listed. It also has effects (such as high risk of accidental injury) considered unfavorable by other commenters. Pages II-70 and II-71 of the Draft EIS summarize the positive and negative effects of alternative E. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS.

As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

Although not preferred, we could also support Alternative F which continues present levels of management practices.

Sincerely,

Vernon Bevill

Vernon Bevill
Executive Director

VB:mw

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: I'd like to compliment you and your staff for a very comprehensive piece of work, which I'm sure took much time, effort and money. I'd also like to compliment your agency for your seem'ng sensitivity to thoughts and ideas other than your own. I understand that you have to reflect the policies and the directives of your superiors, even though you know some are incorrect or improper for management of the Forests for all the people.

Why? I agree with quite a lot of your findings, and again, I know that you have to research a lot of this material through other agencies' publications, and having worked with and in conjunction with some of these suchas EPA and USPHS during my career with the Fla.Marine Patrol under Fla. DNR, I am very dubious about some aspects of their labeling of chemicals, their long term effects on our enviroment.

1 **Comments on Alternatives:** Your spread of alternatives should enable every one to pick one with which they'd be confortable. I can onlychoose alternative D, since no herbicides are used at all, and I can assure you from past observations that none is better than some in quite a lot of practices, including management of forests. "D" would let you meet most if not all of your objectives except perhaps the total anihilation of all the hardwoods on a designated area or clearcut.

Why? I understand that corridors and etc. have to be maintained to a certain degree, and that a clearcut is much easier to grow a thick stand of pines upon. Who but the timber companies really want a solid stand of pines? Aesthetics AND wildlife are better served if some hardwoods would be left growing on each acre harvested along with the pines left for "seed trees", instead of a total clearcut, as is now the practice.

Other The local economics are helped somewhat with increased mechanical methods also.

Why? Alternative "D" seems like it might keep a good number of folks off the Welfare rolls, would, in my opinion, help preserve our waters, and woodlands for future generations to enjoy as I am doing. I purposly bought a piece of land after a long search, which is bordered on two sides by our Sumpter National Forest, and I'd like for all we moved here for to be improved upon, not destroyed for special interests.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Henry C. Morgan Jr.
Name: First MI Last
P.O. Box 313 (National Forest Rd/550-..)
Street
Mt.Carmel S,C, 29840
City State Zip Code

Response to Comments in Letter No. 273

From: Henry Morgan

Comment No.	Response
1	The commenter's preference for alternative D was included in the content analysis of all comments received. Alternative D does have some of the favorable effects listed. All effects from herbicides are eliminated because they aren't used. However, alternative D does have some effects (such as high risk of accidental injury) considered unfavorable by other commenters. Page II-70 of the Draft EIS summarizes the effects of alternative D. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS. See also response to comments in Letter No. 302, Comment No. 1; and Letter No. 37, Comment No. 2. None of the evaluated herbicides, including those applied aerially, appear to pose significant risk to human or wildlife health when used properly and with mitigation measures outlined on pages II-48 to II-54 in the Draft EIS. Also, as stated in mitigation measure number 1 on page II-35 of the Draft EIS, vegetation management projects will have site-specific analysis that will examine and evaluate a reasonable range of alternative methods, including the use of methods which do not involve herbicides. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

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RESPONSE FORM

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However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: August 22, 1988

Dear Sir:

Why?

1 One could go on and on in response to the veg. mgmt. DEIS. The lack of: ecologists and thoughts of ecosystem management is all too obvious. Why were there no ecologists on the team?

2 Comments on Alternatives:

Why can't fire handle most of the veg. mgmt. "problems"? Many of the problems stem from the type of fire or lack of fire in the past. The DEIS suggests that the USFS is becoming hesitant to use fire. Too cool and moderate fires are partly why there is a vegetative problem in many cases.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

W. Wilson Baker
Name: First MI Last
730 East Jefferson Street
Street
Tallahassee, FL 32301
City State Zip Code

Response to Comments in Letter No. 274

From: W. Wilson Baker

Comment No.	Response
1	Section 102(A) of the National Environmental Policy Act states that a systematic interdisciplinary approach should be used. There is no requirement to include every affected or interested discipline on the team. Studies of ecology are not absent from the backgrounds of several of the team members. Nonetheless, recognizing that other technical specialties could benefit the analytical process, the team relied heavily on others who, though not members of the team, made significant contributions. (See Draft EIS chapter VII, part B and chapter VI, part D).
2	See response to comments in Letter No. 298, Comment No. 1. The preferred alternative does increase the use of prescribed fire (page II-62 of the Draft EIS). As indicated in table II-6, page II-62 of the Draft EIS, prescribed fire currently (alternative F) is used on 83.6 percent of the acres treated for vegetation management. Fires are of low to moderate intensity to avoid severe damage to soil and key plant communities and wildlife habitat (see Draft EIS Chapter IV, sections IV-C, IV-D, IV-F).

RESPONSE FORM

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Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1 Comments on Scientific Analysis: I did not find a table for expected income from certain forests and exactly what is being harvested. Who buys the output and what the cost of production of these products is. Also there is almost no reference to the loss of
2 animal lives in fires. I have personally found dead box turtles and baby foxes etc. after forest fires. I can think of no excuse to inflict
Why? such suffering on the animal kingdom.
3 I would like to see the maximum number of acres go into a primitive forest state, without any harvesting in any form allowed. This is to insure to pass on to future generations the greatest diversity of plants and animals in an undisturbed state.

4 Comments on Alternatives: There is no place for herbicides in a national forest, or any where else for that matter. There is a large portion of abused, strip mined and eroded land. I would like to see the forest service as a model in restoring and reclaiming it. This land could then be used for establishing forests for harvest. But one should not take a healthy forest and destroy it
Why? with herbicides, fire etc to establish harvest forests. The output in clean air and unpolluted water and the knowledge of preserving and protecting forests and animals for future generations should out weigh any dollar and cents balance derived through destruction of a national resource.

Other: It would not surprise me if the droughts during the last few years are not partially caused by the destruction of our forests and those in other countries (Brazil)
Why? The role of the forest service should be one of stewardship and protector of our national forests. Mr. & Mrs. Cordray Parker

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Mr. & Mrs. Cordray Parker
Name: First MI Last
3460 Possum Cr. Tr. S.E.
Street
Bessemer AL. 35023
City State Zip Code

Response to Comments in Letter No. 275

From: Cordray Parker

Comment No.	Response
1	See response to comments in Letter No. 85, Comment No. 1; and Letter No. 50, Comment No. 7.
2	Direct mortality from prescribed burning is discussed in chapter IV (pages 62-63 of the Draft EIS). Most studies show that few animals die as the result of prescribed fire. This may not be true, however, for wildfires.
3	Land allocations such as wilderness or primitive areas are a Forest Land and Resource Management Planning issue and are beyond the scope of this EIS. See response to comments in Letter No. 67, Comment No. 5.
4	Soil and water restoration programs are covered by Forest Land and Resource Management Plans and are beyond the scope of the EIS. Use of herbicides and prescribed fire as spelled out in the EIS will not destroy or damage forest health. For example, mitigations in chapter II, pages II-48 to II-54 of the Draft EIS, reduce adverse effects of herbicides by requiring low application rates, preference for selective treatment, screening out of chemicals with significant risks, large-drop nozzles to reduce drift, and buffers around water bodies, critical habitat, and other sensitive areas. Mitigations in chapter II, pages II-43 to II-46 of the Draft EIS reduce adverse effects of prescribed fire by controlling intensity and severity of burns, smoke emission and transport, use of firelines, etc. Without vegetation management (alternative A), air quality is impacted more, threatened and endangered plants and animals are at greater risk, and wildlife habitat is less productive, than in the preferred alternative. See Draft EIS table II-8.

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RESPONSE FORM

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However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

1 The "Summary" does not address a deadly inadequacy in the evaluation of "herbicide doses people and animals may get".

Why? A dose "shown to be safe in laboratory studies" of small animals can concentrate to unsafe levels in the food chain.

Comments on Alternatives:

Aerial application of herbicides is foolish.

2 Alternative B should be the preferred alternative.

Why? Aerial application of herbicides:
1. is not selective.
2. directly contaminates surface water.
3. requires high capital investment.
4. magnifies the effects of human error.

The relatively low annual cost of Alternative B is attractive.

Other:

Eliminate the use of herbicides.

3 Why? Eliminating the use of herbicides will reduce total costs and risks, both short and long-term.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

David A. Masters
Name. First MI Last
Lake Serene Box 611C
Street
Hattiesburg, MS 39402
City State Zip Code

Response to Comments in Letter No. 276

From: David Masters

Comment No.	Response
1	The "Summary" gives a general overview of the document; however, the Risk Assessment and the Draft EIS address specific anticipated effects and realistic worst cases. These adequately address the concern for doses larger than those used in laboratory testing. Additionally, none of the herbicides evaluated have been found to bioaccumulate; they do not concentrate to unsafe levels in the food chain. See appendix A, page 7-3. See also response to comments in Letter No. 45, Comment No. 1.
2	The commenter's preference for alternative B was included in the content analysis of all comments received. The EIS states that the aerial application of herbicides is non-selective. Mitigation measures incorporated in chapter II greatly reduce the risk of contaminating open water. It does not require a disproportional capital investment when compared with many other tools. See page IV-109 of the Draft EIS for tool cost comparisons. And, finally, no evidence presented in the draft EIS indicates any magnification of the effects of human error. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.
3	Scientific evidence presented in the risk assessment and the EIS supports the position that the herbicides evaluated in this EIS can be used as an effective, relatively risk-free tool in the forest environment. Mitigation measures for the use of herbicides (pages II-48-54 of the Draft EIS) including reduced application rates, emphasis on selective rather than broadcast use, buffering sensitive areas, etc. are all used to improve the relative degree of safety for workers, the public and wildlife, and to minimize adverse effects to non-target plants and the environment. See also response to comments in Letter No. 150, Comment No. 23.

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RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:
Obviously, a great deal of time and effort was involved in preparing this informative Draft Environmental Impact Statement

Why?
Having worked and hiked throughout the area involved, I can understand the needs and problems involved with vegetative management.

Comments on Alternatives:
Despite the detailed minimal direct safety risks of herbicides to humans, I'm sure that I express the concerns of a large portion of the population by being opposed to the increased use of herbicides in the preferred Alternative G.

Why?
Our sensitive environment seems to be bombarded more and more with our chemicals and pollution until it has already reached the critical level for some of the lower members of our food chain.

1

Other:
My first conclusion was preference to Alternative B because the natural environment seems to be most healthy with little help from us. Also, the total cost is very low.

2

Why?
However, I notice that Alternative B does not include any site preparation. Since this would seem important, my preference became Alternative E due to less use of herbicides and less annual cost than the preferred Alternative G. These comments are returned just as a small part of this decision-making puzzle.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Wilford L Abernathy
Name: First MI Last
350 Aiken Rd.
Street
Asheville N.C. 28804
City State Zip Code

Response to Comments in Letter No. 277

From: Wilford Abernathy

Comment No.	Response
1	Considering the low toxicities of proposed selection of herbicides (to animals and humans), the lack of bioaccumulation or persistence, the low application rates and frequencies, and restrictions on methods of application, neither the Risk Assessment or the scientific literature reviewed indicate that the herbicides analyzed are expected to present a toxic risk to animals or humans or their food chain. Please see herbicide mitigations on page II-48 to II-54 in the Draft EIS.
2	The commenter's preference for alternative E, due to less herbicide use and less annual cost, was included in the content analysis of all comments received. Alternative E does have some of the favorable effects listed. It also has effects (such as high risk of accidental injury) considered unfavorable by other commenters. Pages II-70 and 71 of the Draft EIS summarize the effects of alternative E. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

278

RESPONSE FORM

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However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: SEE PAGE 1-of 4, ATTACHED

Why?

Comments on Alternatives: SEE PAGE 3-of 4

Why?

Other: SEE PAGE 2 - of 4

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Archer D. Smith Jr

Name: Fi ARCHER D SMITH JR Last
R R 1 BOX 321
EASTOVER SC 29044

Street

City State Zip Code

PAGE 1 OF 4

SCIENTIFIC ANALYSIS

Painstakingly thorough and complete, covering all principle aspects of Coastal Plain conditions. It deals with a most complex subject in realistic detail.

The treatment for various situations are well stated. For the purposes of this Scientific Analysis the answers are here - just for the reading!

ALTERNATIVES

Good alternatives are described for the whole Coastal Plain area, but Alternative G is preferred.

The first use of prescribed fire in even-aged pine management on the Francis Marion National Forest in S.C was in the late 1940's and the 1950's. This was after a Policy of TOTAL FIRE EXCLUSION - since 1935. It proved strikingly effective! Prescribed Fire became the most successful tool in the Management of Coastal Plain pine stands. It still is!

Moderate use of herbicides - aerially applied. also promises to be an effective supplement to prescribed fire.

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PAGE 2 OF 4

OTHER

As I see it, one of your biggest problems is getting the environmentalists, foresters, land managers and the interested public to read this complete treatise! The answers are here, but reading and digestion are first required!

Those who worked long and hard to compile this work, are to be highly commended for a "SUPER JOB" -- WELL DONE!

Some final - but related thoughts on this subject of Management -

1 - When regenerating pine or hardwood stands, consider restricting areas of clear-cutting to - say 40 acres - for consideration of the wildlife and the public.

- Also, let's don't get "pine-happy" in hardwood areas - Ark. and NC. VA. mtns - and clear-cut hardwood or treat hardwoods to favor pine completely. I think hardwoods have an important place in N.F. Management - both for production of quality furniture wood and for wildlife considerations. Also - hardwood considerations will help future survival of the National Forests!

Response to Comments in Letter No. 278

From: Archer Smith

Comment No.	Response
1	Your many comments are noted. Discussions of clear-cut size were addressed in the Forest Land and Resource Management Plans. Each alternative has different effects on wildlife and wildlife habitat. Chapter IV describes these effects in detail and there are management requirements and mitigation measure in chapter II (pages II-35 to II-54 in the Draft EIS) specifically designed to protect wildlife and their habitat.

PAGE 3 OF 4

You face a difficult problem in "cutting the strings" that restrict N.F. MANAGEMENT. Hope you have "Good Luck!

Sincerely,

Archer D. Sanders Jr.,

Forester, U.S. FOREST SERVICE
APRIL, 1934 TO MAY 1, 1970

In case it's of any importance or interest, my above comments are based on the following experience as a forester:

1934-1938 - S.C.N.F's - Land acquisition, ranger district administration and Wildlife work.

1938-1943 - CALIFORNIA - Fire Control Planning, and Ranger District(2) administration - Sierra and Mendocino N.F.'s.

1943-1946 - R-8-ATLANTA - Directing program for protecting Critical War Areas from forest fires - Southern Region.

1946-1951 - R-8-ATLANTA - CM-2 Program - Southern States.

PAGE 4 OF 4

1951-1957 - S.C.N.F.'s - COLUMBIA
ASST. FOR SUPERVISOR - Fire Control, Prescribed Fire, Wild-life, Recreation, and Work Plans.

1957-1966 - R.O. ATLANTA -
DIV. FIRE CONTROL - Fire Control, fire training & Prescribed fire " ; N.F. Manual - F.C
DIV. OPERATIONS - R-8 BUILDING PROGRAM.
DIV. S.S.P.F. CM-2 WORK & INSTR. TRAINING - R-8 States

1966-1970 - R.O. ATL. - ~~AREAS~~ S & P.F. SED.
- DIV. CHIEF. CM-2 - INST. TR - Fire Compact. work, S. States.

May 1, 1970 - Retired, U.S.F.S. and Given Silver Smokey AWARD.

1970 - 1988 - RETIRED - EASTOVER. S.C. -
12 years - forestry Consultant.
11 years - On Board of Tri Co Rural Electric Cooperative (Pres. 1987, 88 & 89.)
18 years - Various Community involvement

8/22/88

National Foundation For The Chemically Hypersensitive

A Chemically Induced Immune System Disorder

Post Office Box 9
Wrightsville Beach, NC 28480

Telephone
(919) 256-5391

8-27-88

Steve McConquadale, Team Leader
Vegetation Management, EIS Team
USDA Forest Service
1720 Peachtree Road - NW.
Atlanta, Georgia 30367

Dear Mr. McConquadale;

We appreciate this opportunity to have a little input on E.I.S. of U.S.F.S. on the Southern Region.

You have a very difficult job to do. It is a very delicate dance. There are so many personal interests to keep in mind. There are so many people who seek your attention.

Very simply, the EIS. is terribly incomplete.

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(2)

1 There is no IMP alternative.
Alternate D - (no herbicide is best for purely health reasons). (Water quality)

The GAO Risk/Benefit is very clear. Herbicide benefit the few and place many at great health risk.

The health damage caused by pesticides is becoming an overwhelming health problem.

The National Academy of Science state that 15% of our population are adversely effected by ambient toxic substances. The World Health Organization has stated that 1,000,000 people a year are severely injured by pesticide. There are over 50,000 deaths per year that are caused by pesticide. (300,000 injuries per year in California alone - per Cesar Chavez)

Safety is never there -- Risk / benefit ain't there

We hope your final plan is a healthy plan.

We support the views of the Agriculture Resource Center + Mr. Allen Spalt.

Sincerely,
Fred Nelson

Response to Comments in Letter No. 279

From: Fred Nelson

Comment No.	Response
1	The commenter's preference for alternative D was included in the content analysis of all comments received. For water quality concerns, see response to comments in Letter No. 70, Comment No. 3. Integrated Pest Management (IPM) is a much used and poorly understood concept. IPM is defined in several Forest Service publications as "a decision-making and action process incorporating biological, economic, and environmental evaluation of pest-host systems to manage pest populations." Unfortunately, IPM is often erroneously interpreted as being an alternative to chemical pesticides for dealing with forest pests. In this EIS, all alternatives except A use IPM principles. Alternative D constrains the use of IPM principles.
2	The statistics from GAO, the National Academy of Sciences, the World Health Organization, and Cesar Chavez were not found during our extensive literature search for this project. Our analysis based on the most current scientific data available or a widely-accepted model for compensating for the lack of data (Risk Assessment) did not reveal significant adverse health effects, or significant adverse effects on water from the use of the 11 evaluated herbicides when used in the framework of the mitigation measures disclosed in chapter II of the EIS (pages II-48 to II-54 in the Draft EIS). If more complete citations can be provided, the team will review the literature suggested by the commenter.

FLORIDA FORESTRY ASSOCIATION

402 EAST JEFFERSON STREET • P.O. BOX 1698 • TALLAHASSEE, FLORIDA 32302 • (904) 222-5646

Jack Vogel, President

Wm. Carroll Lamb, Executive Vice President

August 24, 1988

USDA Forest Service
Southern Region
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

Dear Sirs:

1 We are submitting the following comments in response to the U.S. Forest Service's Draft Environmental Impact Statement (DEIS) for Vegetation Management on National Forests of the Coastal Plain/Piedmont area. We strongly support the proposed preferred Alternative G.

Vegetative manipulation is a necessary element in any forestland management regime. A primary goal of the prudent land manager is to minimize the expense and potential environmental damage such manipulations can cause while successfully creating the benefits associated with such vegetative management. Alternative G provides Forest Service land managers the options necessary to make such prudent decisions.

Alternatives F, G and H either maintain or favor market outputs from Forest Service lands in this region. We strongly believe this is critical to the strength of the forest products industries and the general economies of the relatively poor and rural counties many of these forests are located in . These three Alternatives also appropriately emphasized fire as the primary management activity related to vegetative management. However, fire fails to provide all the necessary options to the forester making appropriate management decisions.

Although Alternative G only maintains both market and non-market outputs at current levels, the environmental benefits this Alternative offers beyond F and H appear compelling. Heavy mechanical site preparation, while necessary on certain sites, is minimized at reasonable levels. Herbicide application is

Response to Comments in Letter No. 282

From: Carroll Lamb

Comment No.	Response
1	The commenter's preference for alternative G was included in the content analysis of all comments received. All alternatives, including G, have both favorable and unfavorable effects. Please see table II-8 for a summary of effects. While the commenter prefers alternatives such as F, G, and H because of market outputs, other commenters favored non-market outputs. Other effects considered favorable by the commenter do occur under alternative G and these have been considered.

recommended as an environmentally sound option. Herbicide application provides a land manager with a vegetative management technique on erodible sites far less damaging to soil and water resources than heavy mechanical site preparation methods; herbicide use will receive such reasonable consideration under Alternative G. Table II-8 on page 65 of the DEIS documents the limited adverse environmental impacts of Alternative G, especially in relation to soil and water resources, when compared to other reasonable alternatives.

Thank you for the opportunity to comment on the DEIS. If there are any questions regarding our comments, please feel free to call on us.

Sincerely yours,

Wm. Carroll Lamb

Wm. Carroll Lamb, CAE
Exeutive Vice President

WCL/mkj

cc: Robert T. Jacobs

285

EDWARD REID
SOFTWARE CONSULTANT
P.O BOX 378
GREENSBORO, FL 32330
(904) 442-3300

23 August 1988

USDA Forest Service, Southern Region
1720 Peachtree Rd NW
Atlanta, GA 30367

Re: DEIS for Vegetation Management in the Coastal Plain/Piedmont

Dear Sirs:

1 I strongly oppose all herbicide use on National Forests. Sensitive plant species are easily affected by herbicides. Although the proposed plan requires an Environmental Analysis for each area to be treated, it does not require a detailed site examination by a botanist or plant ecologist. Given the nature of plants and their growth, such an examination would require several weeks of time, spread out over a full year. Since the National Forests in Florida have only one plant ecologist, it is obvious that at current personnel funding levels, adequate evaluation will be impossible. The only conceivable conclusion is that herbicide use must be forsworn.

2 Also, it appears that plants considered endangered or threatened by individual states are not being automatically included in the Forest Service list of sensitive plant species (Table III-8). For example, Florida's State Natural Heritage Program lists all orchids found in the state as endangered or threatened (see the American Orchid Society Bulletin, February 1987, p. 150). However, despite the well-known presence of many orchid species on the Apalachicola National Forest, none are on the Forest Service list. I find the failure to include the state lists to represent an abdication of responsibility to the citizens and the resources of the individual states.

3 Despite my being on the mailing list the Forest Service uses to notify the public of projects affecting Florida, I received no notice that this DEIS was available for public review; my review has been rather limited as a result. You should not assume that only those who respond to the call for issues are interested in the final review, especially for a document with such far-reaching implications as this. I

Response to Comments in Letter No. 285

From: Edward Reid

Comment No.	Response
1	Prior to any vegetation management treatment, projects will undergo site-specific analysis (mitigation measure number 1 on page II-35 of the Draft EIS) which determines appropriate methods and tools, intensity and selectivity of applications, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. This includes the examination and evaluation of a reasonable range of alternative methods, including the use of methods which do not involve herbicides. In order to prevent unknowing impacts on threatened, endangered, proposed, or sensitive species, regardless of the method or tool proposed for use, mitigation measure number 2 on page II-36 of the Draft EIS specifically states that when adequate population inventory information is unavailable, it will be collected when the affected site has a high potential for occupancy by a threatened, endangered, proposed, or sensitive species. Figure D-1 of the Final EIS traces the process required to insure adequate assessment of potential harmful effects. Threatened, endangered, proposed, and sensitive species are further protected from herbicide effects by mitigation measure numbers 4, 5, 6, 8, 15, 25, and 27 in chapter II, pages II-48 to II-53 of the Draft EIS. Project planning is a process that involves a variety of disciplines. Based on the characteristics of a site, the appropriate level of expertise will be sought during site-specific analysis. Depending upon the type of project, or treatment proposed, this may or may not always require the expertise of a plant ecologist. For example, some projects may require expertise of a soil scientist, hydrologist, or an archaeologist. Additionally, plant ecologists are being sought for other national forests in the Southern Region. Additionally, as a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

(letter continues on next page)

2 Table III-8, the Forest Service list of sensitive plant species on Coastal Plain/Piedmont national forests, was incomplete in the Draft EIS. The list has been corrected to contain the most complete and up-to-date listing of the plant species the Forest Service considers as sensitive, at the time of issuance of the Final EIS. These lists do change periodically as more information becomes known about these species, and as more accurate inventories are completed (see appendix E of the Final EIS). Appendix D of the Final EIS has been reworded to explain the process for designating sensitive species.

3 We are sorry about the mixup. The letter soliciting comments on issues (1/21/87) clearly indicates that to remain on the mailing list for EIS information the comment form or some other notification was necessary. Postage was paid by the Forest Service to simplify this process. To further enable public participation a press release announcing Draft EIS availability with background information was provided to local and regional media during mid-May 1988. A notice of availability of this EIS appeared in the Friday, June 3, 1988 Federal Register (p. 20366). Then, a follow-up press release urging that the comment period was nearly over was provided to media in late July 1988. Intervening information such as question-and-answer sheets and a 10-minute slide-tape program were made available through each Ranger District and Supervisor's office in the affected area. You will be sent a copy of the Final EIS when published.

hereby request that you amend your procedures to include full public notice of important documents at the time they are available for public review.

Sincerely,

Edward Reid

cc: National Forests in Florida, Tallahassee

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FLORIDA CHAPTER
THE WILDLIFE SOCIETY

Larry Perrin
Rt. 3, Box 5466
Crawfordville, FL 32327
(904/926-5077)

August 24, 1988

Mr. John E. Alcock
Regional Forester
USDA Forest Service
Southern Region
1720 Peachtree Road, NW
Atlanta, Georgia 30367

Dear Mr. Alcock:

The Florida Chapter of The Wildlife Society is an organization of professional wildlife biologists dedicated to the wise use and management of our natural resources. Our chapter has reviewed the Draft Environmental Impact Statement (DEIS) on Vegetation Management in the Coastal Plain/Piedmont and offers the following comments.

This DEIS includes vegetation management techniques for the national forests within the Coastal Plain and Piedmont. The proposed vegetation control methods include the use of herbicides, mechanical methods, prescribed fire, manual methods, and biological methods. The preferred alternative of the Forest Service is Alternative G which focuses on prescribed fire and herbicides as the major means of vegetation control. Manual and biological methods would be would be a minor component of this alternative.

1 Our primary concern with Alternative G is the extent of herbicide use for vegetation control, particularly since little is actually known about their effects on most wildlife species. Additionally, aerial and broadcast application of herbicides, as allowed under this alternative, poses a greater risk to fish and wildlife populations and their habitat due to the large quantities necessary to treat an area and the amount of non-target vegetation impacted. Many of the non-target plant species that would be impacted under such a broad herbicide treatment program would be of significant value to wildlife resources.

Another concern with Alternative G is use of mechanical methods for vegetation control that would result in low to moderate soil

Response to Comments in Letter No. 286

From: Larry Perrin

Comment No.	Response
1	Toxic effects on wildlife, as well as effects on wildlife habitat, are discussed in sections IV-D and IV-E of the Draft EIS. The Risk Assessment (appendix A) and the body of scientific literature suggest that risk of toxic effects are very low. As with any manipulation of habitat, herbicides alter habitat in ways that benefit some species and adversely affect others. Scientific evidence presented in the risk assessment and the EIS supports the position that herbicides can be used as an effective, relatively risk-free tool in the forest environment. Mitigation measures for the use of herbicides (pages II-48-54 of the Draft EIS) including reduced application rates, emphasis on selective rather than broadcast use, buffering sensitive areas, etc. are all used to improve the relative degree of safety for workers, the public and wildlife, and to minimize adverse effects to non-target plants and the environment. See also response to comments in Letter No. 97, Comment No. 2; and Letter No. 150, Comment Nos. 20 and 23.

2 disturbances. Some of these methods, particularly those used for piling and bedding preparation, can significantly reduce the species diversity and richness of the native plant communities of the Coastal Plain. Moreover, these intense (although listed as moderate) techniques can limit available forage and habitat quality for important game species, songbirds, and other wildlife.

Based on these concerns we recommend that Alternative G not be selected and that another alternative be created similar to that proposed by the Florida Game and Fresh Water Fish Commission in their letter of 22 August 1988. If another alternative cannot be created, we then recommend that Alternative C be modified to include a greater amount of prescribed fire so that overall acreage treated would at least equal that proposed in Alternative G.

3

Under this vegetation management scenario herbicides could be used where necessary, but with much better control in terms of treating target vegetation. Also, the quantities of herbicides used would be reduced over that proposed in Alternative G. In addition, by increasing the amount of prescribed burning, significant wildlife and plant community benefits could be obtained. It is well documented that fire is a necessary component of many of the native plant communities of the Coastal Plain and numerous wildlife species including such listed species as the red-cockaded woodpecker, indigo snake, and gopher tortoise could also benefit from such a burning program. Ideally, both dormant season and growing season fires would be used to obtain desired plant community structure. In addition, manual and biological methods should be used in conjunction with prescribed burning efforts, but care should be exercised in the use of these techniques, particularly with regard to biological methods. Finally, the continued coordination with other resource agencies and individuals is imperative if a sound and flexible vegetation management program within our national forests is to be achieved.

We appreciate the opportunity to make comments on this DEIS. Please contact me if you have any questions.

Sincerely,

Larry Perrin

Larry Perrin
President

cc: Executive Board

(Continuation of Forest Service response)

2 Research has shown that following harvest and site preparation by low to high intensity mechanical methods, herbaceous species temporarily increase while woody species temporarily decrease. Forage species increase with mechanical treatments which favors game species such as deer, rabbits, and quail. See chapter IV, pages IV-40 and IV-41 of the Draft EIS for discussion on species composition and successional patterns; and page IV-67 of the Draft EIS for the effects of mechanical methods on wildlife species. Additionally, mitigation measures such as number 1 on page II-35, number 2 on page II-36, number 17 on page II-41, and numbers I-8 on pages II-46 and II-47 of the Draft EIS are used to manage, protect, and/or promote vegetation diversity and a variety of wildlife habitats.

3 The commenter's preference for a creation of a new alternative or a modification of alternative C was included in the content analysis of all comments received. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

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RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

YOUR RESEARCH ON ENVIRONMENTAL DAMAGE IS BEYOND CRITICISM. IT IS VERY THOROUGH CONGRATULATIONS.

Why?

DOT — AS WE ALL FEAR — THE LONG RANGE HAUL DOWN THE ROAD, IF THERE WILL BE SOME.

Comments on Alternatives:

Why?

Other:

1 CONCERN OF PETROLEUM CARRIERS FOR HERBICIDES

Why?

FIRE HAZARD, IN CASE OF SLOW EVAPORATION, AND HUMAN ERROR (CARELESSNESS)

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

MERRILL R REX
Name: First MI Last

201 SPRINGDALE DR
Street

UNION, S.C. 29379
City State Zip Code

Response to Comments in Letter No. 293

From: Merrill Rex

Comment No.	Response
1	We express concern for the possible adverse effects of the petroleum carriers -- especially as they might affect birds eggs and water quality and aquatic habitats. A new mitigation is included in the final EIS which precludes use of herbicides, either formulated or later mixed with petroleum carriers in areas inhabited by ground nesting, threatened or endangered species where eggs might be present onsite (during the nesting season). The chief use for petroleum is as a bark penetrant and, as such, herbicides in petroleum products will normally be used only in streamline operations shown on page II-26 of the Draft EIS (although other labeled use is not forbidden).

IN MY TRAVELS, SINCE RETIREMENT, I'VE SEEN WHAT THE ENGLISH, & THE GERMANS DO WITH THEIR WOODLANDS. THEY ARE GOOD. BUT OUR MANAGEMENT IS JUST AS GOOD. CONGRATULATIONS. THANKS FOR THE GOOD WORK.

T. R. R..

294

U.S.FOREST SERVICE
ATTN: ROOM 362S
1720 PEACHTREE RD. NW.
ATLANTA, GEORGIA 30367

2220 NORTH RAGUET ST.
LUFKIN, TX. 75901

AUGUST 25,1988

TO THOSE CONCERNED,

THIS LETTER CONCERNS THE FOREST SERVICE VEGETATION MANAGEMENT POLICY AND PROPOSALS. AS A CITIZEN AND TAXPAYER OF THE UNITED STATES I AM PART OWNER OF OUR PUBLIC LANDS. I HAVE LISTED BELOW WHAT I FEEL TO BE MORE SOUND FOREST MANAGEMENT PRACTICE AND WE SHOULD MOVE SWIFTLY TOWARD THE FOLLOWING:

1

1) THE U.S. FOREST SERVICE SHOULD IMMEDIATELY REJECT THE CLEAR-CUTTING / BULLDOZING APPROACH TO FOREST MANAGEMENT.

2) THE U.S. FOREST SERVICE SHOULD LIMIT ITS REDUCTION OF HARDWOODS AND OTHER NATIVE PLANTS TO WHAT IS NECESSARY TO PROTECT PUBLIC HEALTH AND SAFETY.

3) THE U.S. FOREST SERVICE SHOULD CHANGE TO SELECTION MANAGEMENT (i.e. GROWING MIXED STANDS OF HARDWOODS AND PINES AND SELLING INDIVIDUAL TREES FROM EACH STAND EVERY FEW YEARS, ALWAYS KEEPING THE FOREST COVER FOR NATURAL RESEEDING, FOR HUNTING, FOR SOIL ERROSION PROTECTION AND FOR PEOPLE'S ENJOYMENT).

4) CONGRESS SHOULD DIRECT THE U.S FOREST SERVICE TO CHANGE ITS HARVESTING METHODS FROM CLEARCUTTING TO SELECTION.

SINCERELY,

GENE D. STEWART,JR.
(409) 639-2808

XCS: FOREST PRACTICES COMMITTEE
LONE STAR CHAPTER, SIERRA CLUB
1401 19TH STREET
HUNTSVILLE, TX. 77340

REP.CHARLES WILSON
705 NORTH 1ST ST.
LUFKIN,TX. 75901

Response to Comments in Letter No. 294

From: Gene Stewart

Comment No.	Response
1	See response to comments in Letter No. 79, Comment Nos. 1, 2, 3, 4.

295

Western North Carolina Alliance

OFFICERS:
Dan Pittillo, *Chair*
Judy Williamson, *Vice-chair*
Dick Heywood, *Treasurer*
Lou Zeller, *Secretary*

PO Box 18087
138 E. Chestnut St.
Asheville, NC 28814-0087
(704) 258-8737

Staff
Mary Sauls Kelly
Ron Lambe

23 August 1988

Steve McCorquodale, Team Leader
Vegetation Management EIS Team
USDA Forest Service
1720 Peachtree Rd. N.W.
Atlanta, GA 30367

Dear Mr. McCorquodale:

We would like to provide the following comments on the Draft EIS for Vegetation Management in the Coastal Plain / Piedmont by the U.S. Forest Service, Southern Region.

1

1) The Draft EIS and the Management Plan are incomplete because they do not include an option for Integrated Pest Management (IPM).

2) The Management Plan as part of an IPM option should include a plan for systematic monitoring of forest tracts and development of a data base which allows for initial pre-treatment evaluation and post-treatment comparisons of vegetation status and the effectiveness of control measures. Such systematic monitoring is also vital for assessing the cumulative (long-term and large-scale) effects (positive or negative) of vegetation control measures on forest ecosystems, wildlife populations, and timber production.

3) The Management Plan and the IPM option should include criteria for deciding the best management tools to use on tracts which have differing vegetation status, pest problems and sensitive non-timber resources.

4) An IPM option should be given serious consideration as a management tool because it minimizes potential hazardous effects of herbicides. The IPM option and control methods which minimize the use of herbicides should certainly be included in the Management Plan for tracts or areas which possess non-timber resources which may be negatively impacted by herbicide application (wetlands, riparian zones, fish and wildlife populations).

Response to Comments in Letter No. 295

From: Mary Sauls Kelly

Comment No.	Response
1	See response to comments in Letter No. 279, Comment No. 1. Additionally, on page II-46 of the Final EIS, mitigation measure number 3 under site-specific analysis requires that IPM principles be used during project planning. The mitigation measure also contains monitoring requirements. It is incorrect to assume tht IPM strategies would minimize the use of herbicides. IPM strategies utilize a range of practices which include prescribed fire, manual, mechanical, biological, and chemical tools used alone or in combination. The mitigation measure does not apply to alternative A and it is constrained in alternative D, which does not allow the use of herbicides.

5) The preferred alternative, G, which doubles the amount of acreage on which herbicides will be applied, is untenable (for reasons listed above) at present because the Draft EIS does not adequately address why alternative control methods (manual and mechanical clearing, biological controls) will not work on this acreage. 2

We applaud the Forest Service and the Vegetation Management EIS Team for the level of planning which the current draft entails. However, we hope you will consider our comments and include an Integrated Pest Management option in your final management plan.

Sincerely,

Mary Sauls Kelly

Mary Sauls Kelly, PhD
Coordinator, WNC Alliance

(Continuation of Forest Service response)

2 Chapter IV of the Draft EIS addresses the effects of each method. The determination of the most appropriate tool for a project must be made at the project level after site-specific analysis determines its suitability based on project objectives, species requirements, site characteristics, and effects on environmental elements such as soil productivity, vegetation diversity, wildlife, and threatened, endangered, proposed, and sensitive species. The requirement of site-specific analysis, mitigation measure numnber 1 on page II-35 of the Draft EIS, states that a reasonable range of alternative methods, including the use of methods which do not involve herbicides, will be examined and evaluated. Also, the Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

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JOHN R. SWANSON
P. O. Box 6558
Minneapolis, Minn. 55406

August 22, 1986.

USDA Forest Service
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

Dear Sir:

Please accept my Comments, as follows, concerning—
Vegetation Management Coastal Plain / Piedmont,
Draft Environmental Impact Statement.

The National Forests and National Grasslands are located on the coastal plain / piedmont area contain outstanding wilderness, historical, cultural and scenic resources of certain National significance. And any acceptable vegetation management plan and implementation program concerning this area must consider the unique varied and, very often, fragile resources of the coastal plain / piedmont.

1 Therefore, I wish to advise that I oppose alternative G - preferred alternative - as this alternative even if modified could seriously damage the soil / water and air resources of the coastal plain / Piedmont area.

Rather, may I suggest that vegetation management be applied on a very modest level, and that such management use manual methods, only as we have, and to properly manage, the National Forest System on this area.

For children we save our natural lands and waters;
we save America!

Sincerely,
John R. Swanson.

Response to Comments in Letter No. 296

From: John R. Swanson

Comment No.	Response
1	Alternative G bans intensive tools such as severe slash burns, raking, and heavy disking, so effects from sediment are minimal. A modest program using only manual methods would reduce adverse effects on water quality while use of manual methods only would be worse for air quality and soil productivity than alternative G. Lack of prescribed fire would prevent us from reducing fuel buildups. Wildfires would greatly increase, producing more total smoke. More acres would burn severely, causing serious loss of organic matter and nutrients from more soils. See also response to comments in Letter No. 70, Comment No. 3.

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RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

Comments on Alternatives:

1 SC Forestry Association supports Alt. G-(Preferred)
The use of herbicides can be justified for economic and safety reasons. It has less impact on soil erosion and sediment, toxicity problems much less severe than with mechanical site prep., especially in mountain or Piedmont area.

Why?

Commerial license applicators have a proven track record of success. Labelling instructions are followed. Even aerial application is safe when conditions are right, and proper safegards are adhered to.

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Robert R. Scott
Name: First MI Last
Box 21303
Street
Columbia, SC 29221
City State Zip Code

Response to Comments in Letter No. 297

From: Robert Scott

Comment No.	Response
1	The commenter's preference for alternative G due to favorable effects on economics, safety, soil, and water, and the inclusion of aerial application of herbicides has been included in the content analysis of all comments received. All alternatives, including G, have both favorable and unfavorable effects. Please see table II-8 for a summary of effects.

Robert W. Simons
1122 S.W. 11th AVENUE
GAINESVILLE, FLORIDA 32601
904-372-7646

August 23, 1988

USDA Forest Service
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

Comments on VEGETATION MANAGEMENT in the Coastal plain/Piedmont draft E.I.S.:

1 Of the alternatives presented, alternative G, the prefered alternative, seems to me to be the best one. However, it leaves a lot to be desired. The main problem is that there is too much mechanical and herbicide use and not nearly enough fire. There should be an alternative that stresses fire much more strongly. The reason is that this would provide the conditions that have shaped and maintained the fire adapted pine forests of the Southeast, conditions upon which most of the wild plants and animals unique to these forests depend. Fire works very well to restore and maintain the diverse native flora and fauna of these forests, and also provides the lowest cost method of maintaining pine timber growth.

It is true that the use of some mechanical methods and, particularly, some herbicide application, can greatly facilitate the recovery of some sites that have been mismanaged in the past. The problem is that these proposed alternatives will continue, to a considerable extent, this mismanagement, by using levels of fire low enough so that herbicides and mechanical methods will still be needed to regenerate the pine forest after each rotation in most cases. This damages diversity and wildlife abundance in two ways: one, by not having sufficient fire to maintain a diverse and productive ground cover; and two, by requiring the drastic site preparation methods at the transition from one rotation to the next. This mismanagement results in converting the more diverse and (for wildlife) more productive natural forests into the less diverse and (for wildlife) less productive old field or plantation type of forests.

Sincerely,

Bob Simons

Chairman, Land Management Committee
Florida Defenders of the Environment

Response to Comments in Letter No. 298

From: Robert W. Simons

Comment No.	Response
1	Because the use of prescribed fire for fuels treatment is evaluated, fire represents a high percentage of total treatments in all alternatives. In table II-6 on page II-62 of the Draft EIS, the use of prescribed fire, excluding alternative A, ranges from a low of approximately 83 percent to a high of 87 percent of all vegetation management treatments within the alternatives analyzed. While fire may be "more natural" than other vegetation management methods and is also less costly per acre to apply, it cannot effectively accomplish every job that needs to be done (for example, some pine release and many midstory treatments). See also response to comments in Letter No. 82, Comment No. 5. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

299

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

I want to commend you for such a comprehensive Report.

Why?

Comments on Alternatives:

1 I am not sure how the treatment mix for each alternative was developed. Also, how will the treatment mix of the selected alternative be translated to the individual district or forest?

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

David E. Larson
Name: First MI Last
11705 Fox Rd
Street
Alpharetta, GA 30201
City State Zip Code

Response to Comments in Letter No. 299

From: David Larson

Comment No.	Response
1	The interdisciplinary team is pleased the commenter finds the analysis comprehensive. Treatment mixes in each alternative were developed to meet the criteria on page II-1 of the Draft EIS as well as to meet the intent of regulations which require a range of alternatives. The principle way the mix within the selected alternative is to be applied is through the requirement of a site-specific analysis as required by mitigation 1 on page II-35 of the draft. Site-specific analysis considers the environmental conditions at the project level and determines the specific need for, and amount of, vegetation management to bedone. Vegetation management decisions include the option of doing nothing (no action or no interference). Additional discussions regarding this have been added to the Final EIS, pages I-1 through I-4.

300

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1 Comments on Scientific Analysis: There seemed to be a satisfactory analysis. The review of existing literature was helpful, however, if there was one critical comment it would be the seemingly insufficient data on invertebrates with regards to herbicide treatments. Most higher vertebrates will accumulate toxic levels through ingestion of food items and there is a need for more study in this area.

Why?

2 Comments on Alternatives: I feel that Alternative G utilizes herbicides to an extent that is beyond safe conditions, especially with the inclusion of aerial spraying. The use of prescribed fire is at an amount of usefullness, however manual and biological controls can be safely increased with this alternative.

Why? Alternative D would be the one I favor the most, though I do object to the increase in manual labor methods. No herbicides are used but biological controls can be increased from the level presently proposed. I recommend for any alternative that the site should dictate the vegetation management method. Personally, I prefer the use of prescribed fire during any instance which it can properly be utilized,
Other: and backed up with an effective biological control.

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Christopher G. Brantley
Name: First MI Last
Southeastern La. Univ., P.O. Box 814
Street
Hammond Louisiana 70402
City State Zip Code

Response to Comments in Letter No. 300

From: Christopher Brantley

Comment No.	Response
1	Limitations on the data for invertebrates is recognized in table 8-15 of the Risk Assessment. Data in the risk assessment (page 3-25) indicate that vertebrates do not accumulate (over time) toxic doses of herbicides evaluated. Modeling was used to supplement known information. See response to comments in Letter No. 150, Comment Nos. 20 and 23.
2	The commenter's preference for alternative D was included in the content analysis of all comments received. As stated in mitigation measure number 1 on page II-35 of the Draft EIS, vegetation management projects will have site-specific analysis that will examine and evaluate a reasonable range of alternative methods, including the use of methods which do not involve herbicides. Used carefully, herbicides, in some circumstances, minimize the interference necessary in forested areas while insuring a full range of outputs. Scientific evidence presented in the risk assessment and the EIS supports the position that herbicides can be used as an effective, relatively risk-free tool in the forest environment. Mitigation measures for the use of herbicides (pages II-48-54 of the Draft EIS) including reduced application rates, emphasis on selective rather than broadcast use, buffering sensitive areas, etc. are all used to improve the relative degree of safety for workers, the public and wildlife, and to minimize adverse effects to non-target plants and the environment. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS. See also response to comments in Letter No. 298, Comment No. 1; Letter No. 270, Comment No. 16; and Letter No. 302, Comment No. 11.

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August 23, 1988

NFs in Texas
Homer Garrison Federal Building
701 North First Street
Lufkin, Texas 75901-3088

GENTLEMEN:

Ref: Vegetation Management EIS, USDA Forest Service, Southern Region

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Vegetation Management Plan in the Coastal Plain/Piedmont area.

For sometime I have been watching the destruction and devastation which has been inflicted upon the forests and woodlands of our land. Summer 1987 in Alaska gave me firsthand knowledge of the devastation of the clear cut policy of the Department of Agriculture on our Northwest. Birding from the Sabine River to Sealy reveals the "scrape it clean" policies which prevail with the private and public policies of the forestry people. Summer 1988 coming back to Houston from Williamsburg, Virginia and wishing to drive the Blue Ridge Parkway to the Great Smokey Mountains, we angled across back country Virginia and from Surry, Virginia to the Blue Ridge Parkway was continuous, brutal evidence of the shortsighted policy of private destruction of miles and miles of forestland.

I am a birder, lover of nature, with a deep foreboding that if we continue to scrape clean the earth we will suffer the consequences. This destruction coupled with what I consider to be another afront to the forestlands of this land, the use of chemicals (airborne or otherwise) to control the unwanted vegetation is an extremely shortsighted policy which should not even be considered.

The destruction of habitat of any living creatures (including ourselves) can only lead to further miseries and loss of species. If the chemicals which will be used to clear the unwanted vegetation are so potent that they must be sprayed from the air rather than be applied by hand and thus endangering the operator, then I can only say that I would vote absolutely against this policy and resolve the problem in a more appropriate manner, one which definitely is not so potentially lethal.

The recent observations in the paper regarding the death of Admiral Zumwalt's son, possibly as a result of Agent Orange, should be a lesson to us all that we cannot control what we spray into the air and it can fall on friend and foe alike.

1 As to the evaluation of 11 herbicides each of which controls a single kind of plant: We already know from our problems with contaminated water that one single chemical may not be lethal but the combination of any, some or all of the chemicals in the water has proved to be devastating.

Can we protect the environment from some of the lulu mistakes which have been made in the past with the unintelligent use of gases and chemicals.

Do we know absolutely the answer?

Very truly yours,
Virginia D. Anderson

Virginia Anderson
10023 Burgoyne
Houston, TX 77042

Response to Comments in Letter No. 301

From: Virginia Burgoyne

Comment No.	Response
1	No evidence has been found or projected which indicates that the 11 herbicides evaluated in this risk assessment (appendix A) are involved in causing synergistic effects when properly used. See also response to comments in Letter No. 45, Comment No. 1; and Letter Number 276, Comment No. 1.

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 Smith School Road Austin, Texas 78744

CHARLES D. TRAVIS
Executive Director

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ANTONY SANCHEZ JR.
Laredo

August 26, 1988

Mr. John E. Alcock
Regional Forester
U.S.D.A. Forest Service
Southern Region
1720 Peachtree Road, Northwest
Atlanta, Georgia 30367

Dear Mr. Alcock:

This letter provides comments on the Draft Environmental Impact Statement (DEIS) for Vegetation Management in the Coastal Plain/Piedmont physiographic area (Volume I, including the attached Appendices (Volume II), dated April 1988. The Department has previously commented on the scope and development of the DEIS by letters, dated March 18 and July 24, 1987, and during interagency staff meetings. Given the exploitation and resultant degradation of biotic resources on the relatively abundant private lands in East Texas, the overriding goal of vegetation management on the limited amount of National Forests and Grasslands in Texas (NFGT) should be to maintain and enhance natural biotic diversity within stands, between stands, and across landscapes. These and other previous comments are reiterated and supplemented below.

The most controversial aspect of the vegetation management practices proposed in the DEIS is the use of herbicides. The other proposed methods and tools (prescribed fire, mechanical methods, manual methods and biological methods) are fairly routine and have been in use for many years by the U.S. Forest Service (USFS) and industrial and private landowners. Due to their long established use, effects of different intensities, timing and combinations of these non-herbicide methods can be

FROM PWD/WILDLIFE ED 08 27 88 14:48 P. 1

fairly well predicted. However, the widespread herbicide use is of concern due to the known effects on biotic diversity and non-target species and the relative lack of experience and technical data. The USFS has recognized the controversial nature of herbicide use for vegetation management and has analyzed its uses and effects in greater detail than the other methods.

The use of herbicides is proposed in six of the eight alternatives (B,C,E,F,G,H). Alternatives B and C propose the use of the fairly selective method of application by hand ground tools, with a relatively wide range in the amount of acres treated. Alternatives E and F propose the use of hand ground tools and the less selective method of application by mechanical ground tools. The number of acres alternative F proposes for treatment approximates the number currently annually treated by the USFS in the affected area. Alternatives G and H propose the use of hand and mechanical ground tool applications plus the use of aerial application methods. These two alternatives also propose the two largest treatment acreages.

The USFS's preferred alternative G proposes annual herbicide treatments on approximately 1.1% of USFS lands within the affected area. Assuming a prorated share, approximately 7,150 acres of NFGT lands would be treated annually. Prior to the present moratorium on herbicide use in NFGT, herbicides were used primarily for pine release and site preparation. Alternative G proposes a 83.3% increase over current levels of herbicide use as presented in alternative F. The significant increase in the use of herbicides over current levels proposed in alternative G, coupled with relatively non-selective application including aerial methods, is cause for concern. Prescribed fire and mechanical methods of vegetation control should be preferred to herbicides. Herbicide use should be strictly limited to special purposes for which it is the least damaging alternative. Such purposes may include understory and midstory control during red-cockaded woodpecker management, right-of-way and facilities maintenance, and wildlife habitat improvement. When herbicides are used for these purposes, individual-plant and other selective applications should be preferred over broadcast applications. Herbicides should not be used for site preparation and release in compartments with the mast-producing hardwood component in dominant and co-dominant canopy positions below that of USFS wildlife management guidelines and standards.

1

FROM PRESWILDLIFE EO 08/22/88 14:48 P. 2

Response to Comments in Letter No. 302

From: Charles Travis

Comment No.	Response
1	The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective treatments for each activity within an alternative that allows the use of herbicide methods. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS. Prescribed fire and mechanical treatments comprise 94.4 percent of the total acres treated in the current program (alternative F), 91.9 percent of the total acres treated in modified G, and 90.2 percent of the acres treated in alternative G. See also response to comments in Letter No. 173, Comment No. 3; Letter No. 165, Comment No. 1; Letter No. 296, Comment No. 1; Letter No. 79, Comment No. 2; and Letter No. 61, Comment No. 1. Overall, mitigations not in force in the current program (alternative F) are expected to significantly reduce the risk of herbicides used in the forests and grasslands of the region. Data displayed in the Final EIS indicates that in the current program (alternative F) 70% of all herbicide use for site preparation and timber stand improvement (TSI) projects is applied using selective, not broadcast, tools. In the final EIS modified alternative G shows 75% selective application for site preparation and TSI projects, and reduced use of aerial application (2500 acres) from alternative G's 7,000 acres. In modified G, a total of 1500 acres per year are projected to be treated using aerial application of herbicides for site preparation; aerial application for TSI projects is not allowed in modified G. These plus several other mitigations required in both alternative G and modified G (reduced rates per acre, careful timing, etc.) are expected to reduce the risk in this alternative below that currently resulting from management.

For the above reasons, alternatives A and D should not be considered, due to their proposed ban on herbicides and other considerations. Likewise, alternatives G and H, which propose increased and less selective applications of herbicides compared to current levels, should not be considered. A comparison of the mixture of non-herbicide methods proposed in the remaining four alternatives, in terms of areal distributions and impact potentials, indicates that alternative E is preferred by Department staff. This alternative's relatively limited availability of herbicides is reasonable for special purposes, assuming that annual herbicide use on NFGT is a pro rata share. The availability of both selective and broadcast applications will facilitate judicious use of herbicides. Alternative E proposes a reduction in the amount of mechanical methods and an increase in the use of fire from current levels, both favorable factors. Most favorably, it proposes the greatest amount of any of the alternatives of highly selective manual methods of vegetation management. While alternative E proposes the greatest amount of biological methods (i.e. intense livestock grazing), which can have direct negative impacts on wildlife habitats, the amounts proposed are relatively insignificant. Compared to alternative G, alternative E also achieves less average cost per acre and more employment. Alternative C is the second preference due to an emphasis on selective applications of herbicides and other treatment methods, which cause limited site disturbance and benefit fish and wildlife resources. Alternative C, however, proposes more herbicide use relative to alternative E, without the flexibility available from limited broadcast and aerial applications.

2

In order to conserve state fish and wildlife resources, alternative E should therefore be the preferred alternative, as modified by the recommendations specified above and in the attached appendices A-F. I appreciate the opportunity to provide comments and look forward to your response.

Sincerely,

Charles D. Travis
Executive Director

CDT:TDH:MDK:fmd

FROM PKS&WILDLIFE ED 08/27/88 14:49 P. 3

2 The commenter's preference for alternative E was included in the content analysis of all comments received. Alternative E does have some of the favorable effects listed. It also has effects (such as high risk of accidental injury) considered unfavorable by other commenters. Pages II-70 and II-71 of the Draft EIS summarize the positive and negative effects of alternative E. More detailed summaries of impacts of each alternative begin on page IV-110 of the Draft EIS.

cc: Dr. Brent Ortego, Texas Parks and Wildlife, Jasper
Mr. Mike Krueger, Texas Parks and Wildlife, Lufkin
Mr. Renea Hicks, Texas Attorney General's Office, Austin
Mr. F. Dale Robertson, U.S. Department of Agriculture, Forest Service, Washington, D.C.
Mr. Mike Lannan, U.S. Department of Agriculture, Forest Service, Lufkin
U.S. Fish and Wildlife Service, Houston
U.S. Fish and Wildlife Service, Ft. Worth
Environmental Protection Agency, Dallas

Appendix A

Additional Recommendations Regarding the
Draft Environmental Impact Statement,
Vegetation Management in the Coastal Plain/Piedmont,
Volumes I & II

1. Natural Biotic Diversity:

3 No alternative presented in the DEIS ensures the maintenance of natural biotic diversity. This omission is due, in part, to the DEIS being restricted to the land allocation and resource output decisions of the Forest Land and Resource Management Plans (Vol. I, p.v). This limited scope overemphasizes timber production and prevents complete analysis of alternatives and predictable effects in relation to methods, tools, management requirements, and mitigative measures. For example, the decision of the Final Land and Resource Management Plan - NFGT to practice 100% even-aged timber management limits the maintenance of natural biotic diversity to that possible only through the cyclic regeneration and management of early-successional forest types over the General Forest. By accepting this limited scope, the DEIS presents no alternative which ensures vegetation management will maintain the increased biotic diversity associated with timber management of late successional forest types. The cumulative impact of long-term management for even-aged pine stands is not assessed fully in terms of sound ecological principles. The repeated use of management methods such as site preparation and herbicides may perturb an area too severely so that the original complement of native species steadily regresses.

The DEIS should analyze available information such as maps of potential natural vegetation, soil surveys, topographic maps, disturbance regimes, and hydrologic data which allows the prediction and subsequent inventory and mapping of potential natural biotic diversity throughout the National Forests at a variety of scales (region, district, compartment, and stand). Such an analysis would allow the prediction of the effects of vegetation management on natural biotic diversity for a given area. Natural biotic diversity can only be maintained by managing for the complete range of

3 As indicated on pages I-6 and 7 of the Draft EIS, issues such as silvicultural systems, harvest cutting methods, and landscape-wide diversity were addressed in Forest Land and Resource Management Plans (prepared under 36 CFR 219) and are outside the scope of this document. However, this EIS is prepared to conform to the requirements of the National Environmental Policy Act and as such it displays effects of vegetation management methods that may be used to implement Forest Land and Resource Management Plan goals and objectives on Coastal Plain/Piedmont forests for the programs detailed in section I-A. Decisions based on this EIS are implemented in concert with Forest Land and Resource Management Plans. The Plans set overall direction for managing the national forests and grasslands.

This EIS is used to make decisions on how the vegetation management program on Coastal Plain/Piedmont national forests and grasslands is conducted. The major decisions are: what methods and tools are allowed, what intensity and frequency of treatments are used, and what management requirements and mitigation measures are applied for the activities listed on pages I-1 and I-2 of the Draft EIS.

Pages IV-30 to IV-72 of the Draft EIS specifically display the effects of vegetation management on plant and animal communities. Mitigation measures, such as numbers 1 and 2 on pages II-35 to 37; numbers 15 and 17 on page II-41; numbers 12 and 13 on page II-45; numbers 2 and 5 on page II-48; number 8 on page II-49 and 50; and numbers 1, 2, and 3 on page II-54 of the Draft EIS are specifically designed to protect and in many cases enhance plant and animal diversity.

successional stages characteristic of the potential natural vegetation indicated for a given area. Although the stated purpose of the DEIS is to analyze such predictable effects (Volume I, IV-2), an analysis of the effects of vegetation management upon natural biotic diversity is not included in the DEIS. In fact, the DEIS's overly simplistic designation of broadly defined plant communities prevents a substantive analysis of management impacts on the diversity of potential community types in the study area.

2. Wildlife Habitat:

Throughout the Coastal Plain/Piedmont, the majority of timber stands on the National Forests are typed to pine management due to climate, soil types, economics, silvicultural emphasis, and other factors. On the NFT, approximately [redacted] percent of the timber stands are typed to pine management. Regional guidelines indicate that 15 percent of the forest soils of the NFT are capable of supporting hardwood management types, and an additional 23 percent are capable of supporting pine-hardwood or hardwood-pine management types. These percentages of soil types capable of management for hardwoods may be underestimated. Yet only 12 percent of NFT timber stands are currently typed to hardwood management. Certain vegetation management methods may contribute to keeping soil types from producing the diverse species composition that they are capable of producing. Given this large area in which pines are typed as the best suited or dominant species, plant diversity, and more specifically an adequate component of hard- and soft-mast producing species in the dominant or codominant positions, should be maintained. At present, the diversity within and between pine stands is not adequate to provide for the needs of wildlife and the maintenance of minimum viable populations of all species. Specific vegetation management methods, used either singly or in combination with others, may perpetuate this shortcoming.

4

All methods and tools to control hardwoods, during site preparation and timber stand improvement, should not be used in compartments with the mast-producing hardwood component in dominant and co-dominant canopy position below that of USFS wildlife management guidelines and standards. In order to increase the hardwood component and other food and cover needs of wildlife, natural pine regeneration should be prescribed for such compartments. Also, some types of site preparation result in the movement of soil, either mechanically or by subsequent

FROM PRESIDENCE 80 08 27 88 13:51 P. 6

(Continuation of Forest Service response)

4 Decisions concerning management type, hardwood percentages, and hardwood component of pine stands are made at the forest plan level and are not addressed in the vegetation management EIS. However, mitigation measure number 1 on page II-35, numbers 15, 16, and 17 on page II-41, number 12 on page II-45, and numbers 2 and 5 on page II-48 of the Draft EIS specifically require projects to protect, manage, and/or promote a variety of overstory and understory vegetation when doing vegetation management treatments. See also Letter No. 265, Comment No. 6.

erosion, reducing the overall capabilities and productivity of the site. These methods should not be preferred over less intensive methods. No site preparation methods, such as bedding, should be allowed to convert existing hardwood and longleaf pine stands. Also, stands which, based on soils and other factors, would support hardwoods and longleaf pine should be managed for this potential natural vegetation.

3. Prescribed Fire:

5 Drainage areas (streamside management zones) and hardwood key areas within pine stands, while generally too small to break out as separate stands, are more capable of producing hard- and soft-mast tree species than the surrounding stand. These sites should be protected from prescribed fire if conditions are such that a fire would burn through them unchecked if not stopped by a firebreak. Burning results in damage to hardwood species reproduction and initiates butt rot in hardwood trees. Hardwood stands also should not be burned. Certain wetland types, including seepage and peat bogs, should be prescribed specific management methods which include regular burning. Also, fire should be prescribed for Wilderness Areas where necessary to maintain longleaf pine and bog communities.

4. Wetlands and Aquatic Resources:

6 Soil disturbances, associated with site preparation, and construction of fire lanes and roads should be excluded from the upslope vicinity of wetlands, especially those dependent upon seepage. No disruption of the hydrologic regime, including secondary impacts due to erosion, sedimentation, and water quality, should occur to wetlands and aquatic resources. Except as necessary for facility and right-of-way maintenance and construction, conservation buffers, protected from even-aged timber management and heavy machinery, adjacent to wetlands and aquatic resources should be of sufficient width to maintain viable wildlife populations. In order to provide for adequate food, shelter, and migration, buffers should be at least 100 feet wide to either side of ephemeral and permanent streams up to 30 feet in width. Along permanent streams wider than 30 feet, wetlands, and other water bodies, buffers should be at least 200 feet wide.

FROM FWS/WILDLIFE EO 08 27 88 14:52 P. 7

5 Mitigation measures on pages II-44-45 of the Draft EIS ensure that streamside zones and hardwood inclusions will be protected from damage by prescribed fire. The EIS does not preclude use of prescribed fire in wilderness or wetlands. See response to comments in Letter No. 265, Comment No. 16.

6 Sediment control (filter strip) buffers whose width in feet is 30 + 1.5 times percent slope have been shown to trap nearly all sediment at least 95 percent of the time. Mitigation measure numbers 7 and 8 on page II-44 of the Draft EIS prohibit plowed firelines in the upslope vicinity of wetlands except in very rare cases. See response to comments in Letter No. 270, Comment No. 17.

5. Regional Distribution of Treatment Methods :

7 The relative distribution of vegetation methods within the affected area should be stated in the DEIS. It is assumed that the various treatment methods are prorated among the National Forests based on relative areal extent.

6. Site-specific Environmental Assessments:

8 As stated repeatedly throughout the DEIS (pp. V, I-4, II-35 IV-2, etc.), the final EIS will be programmatic and individual proposed actions will have a site-specific environmental assessment. The DEIS should specify procedures of coordination with state resource agencies. These site-specific assessments should be prepared well enough in advance (30 days) to allow adequate field review by Department staff.

7. Threatened, Endangered, Proposed, and Sensitive Species:

9 The DEIS does not adequately identify available inventories of threatened, endangered, proposed, and sensitive species. Specifically, the species listed in attached Appendices B-F (including a Federal endangered species), which occur in the NFGT should be identified in Tables III-5 through III-8 of the DEIS and evaluated in the site-specific assessments, the risk assessment (Appendix A), and the biological evaluation (Appendix D).

8. Risk Assessment and Monitoring:

10 The risk assessment is also deficient in that no assessment of impacts to individual plant species or to plant community structure and composition is included, even though the use of herbicides is the major focus. Plant species which are sensitive, of limited distribution, and important as food and cover for wildlife should be included as indicator species, to monitor the impact of vegetation management on ecosystem health. More detailed information concerning specific monitoring methodologies, including sample sizes and field techniques, should be included. Many of the animal species listed as indicator species either do not occur or are only occasionally seen in Texas.

FAX M P&WILDLIFE ED 08/27 88 14:53 P. 8

7 As stated on page II-2 of the Draft EIS, the average acres treated per year by each method are estimated. These acres are projections used to evaluate environmental effects quantitatively. They are displayed for the Coastal Plain/Piedmont forests and grasslands as a whole, not for individual forests or grasslands. During implementation, the actual program may vary from these projections. Depending on which alternative is selected, the Plans may need to be amended, especially in the methods and tools allowed and the mitigation measures applied. See also response to comments in Letter No. 265, Comment No. 1.

8 Site-specific analyses are done under the guidance and form of the regulations of the Council on Environmental Quality for implementation of the National Environmental Policy Act. Mitigation number 1 on page II-35 of the Draft EIS is sufficiently detailed to capture the intent of these regulations. Coordination requirements for individual States affected by this EIS are specified in Forest Land and Resource Management Plans, Cooperative Agreements, and other formal and informal arrangements at the forest level. This EIS does not abridge existing agreements, therefore you need to coordinate timing and review questions with national forests in your area of concern.

9 These lists have been updated since the Draft EIS. Species identified in appendix E in the Final EIS (tables III-5 through III-8 in the Draft EIS) reflect the most current status of threatened, endangered, and proposed species as designated by the U. S. Fish and Wildlife Service in the Federal Register which are known to occur on national forest lands in Texas. Species known to occur on national forest lands in Texas which are identified by the Forest Service as sensitive also are shown in appendix E of the Final EIS. As the National Forests in Texas update their list of sensitive species based on coordination with your agency, this appendix will be updated. Also see response to comments in Letter No. 265, Comment No. 22.

10 The risk assessment contains modeling for human health and wildlife. Data presented in the vegetation section of Chapter IV of the Draft EIS, and in chapter II (Herbicide methods; herbicide characteristics) deal with effects to individual plants and species composition.

Alcock, Page 9 of 25
DEIS

9. Biological Method:

11 Grazing, including when used as a biological tool, should be excluded from longleaf pine and hardwood stands of all ages, to prevent adverse impacts due to soil compaction and selective consumption of desirable vegetation, including advance regeneration.

10. National Grasslands:

12 Insufficient information is included to assess vegetation management on the two National Grasslands in Texas. The mix of tools and methods and the frequency and duration of their use are not disclosed for the National Grasslands. The monitoring methodologies specific to grasslands are not available to determine effects on vegetation, soil, water quality, wildlife, etc. The primary goal within the National Grasslands should be restoration and maintenance of potential natural biotic diversity, since native prairies are among the most endangered of Texas' native communities.

FROM PRESIDIO,TFE 60 09 27 98 14:53 P. 9

(Continuation of Forest Service response)

11 Grazing is a viable vegetation management tool and is therefore analyzed. Without appropriate mitigation measures grazing can cause adverse impacts to vegetation, soil, and water resources. Mitigation measure numbers 1, 2, and 3 on page II-54 of the Draft EIS are intended to protect these resources. Due to the unavoidable impacts of heavy grazing on these resources, however, the biological method of grazing has been eliminated in alternative Modified G. See also Letter No. 340, Comment No. 2.

12 As stated on pages I-2 and III-1 and 2 of the Draft EIS, the two National Grasslands in Texas are part of the Coastal Plain physiographic division and are analyzed as such. The alternatives were developed with full consideration of these areas. The choice of methods and tools available for use, intensity and frequency of treatments, and management requirements and mitigation measures applied (which include monitoring requirements) on the grasslands will be limited to those available in the selected alternative. See also Letter No. 167, Comment No. 21, and Comment No. 2 of this letter.

Appendices B-F include lists of threatened, endangered, and sensitive plant and animal species.

304

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902

AUG 26 1988

Mr. John E. Adcock
Regional Forester
USDA Forest Service
1720 Peachtree Road, NW.
Atlanta, Georgia 30367

Dear Mr. Adcock:

The Tennessee Valley Authority has completed its review of the Draft Environmental Impact Statement (DEIS) for Vegetation Management on National Forests and Grasslands of the Coastal Plain/Piedmont area. In general, the DEIS is a readable, comprehensive, and thorough treatment of the subject. We do, however, have the following comments and suggestions.

1 • Page II-40 e. Safety--No mention is made of equipment inspections, their frequency, or the level that requires preventive maintenance before further use. Similarly, aircraft inspection, loading checks, balancing, etc., are not discussed.

2 • Page II-51 (15)--Windspeed criteria for aerial application of herbicides are high. TVA curtails aerial application when wind speed exceeds three miles per hour for liquid and six miles per hour for granular application.

3 • Page II-68, Alternative A--The second sentence should be changed to read "There are no herbicides used, so there is no risk of adverse health effects or environmental pollution from them."

4 • Page III-22 c. Utility Corridors--Insert a new sentence before the next to last sentence of the second paragraph to read "Vegetation management on utility corridors favors growth of grasses, forbs, and shrubs on the right-of-way for erosion control."

5 • Page IV-26-29--The analysis of impacts on human health and safety from manual methods and prescribed burning would be improved by more specific information about the types and numbers of worker accidents that occur, how many are a minor cut or burn or a permanently disabling loss of a limb, for example. Also, knowing lost workdays would help.

6 • Page IV-131--The Tennessee Valley Authority should be designated as "an agency of the Federal Government" rather than as "a quasi-governmental agency."

An Equal Opportunity Employer

Response to Comments in Letter No. 304

From: Paul Schmierbach

Comment No.	Response
1	Mitigation measure number 20 (page II-52 of the draft EIS) requires daily inspections of equipment for leaks. Preventive maintenance schedules and aircraft inspections and miscellaneous operational considerations are provided for in a mitigation added in the Final EIS (number 25, page II-61) which requires the air safety officer to approve both aircraft and equipment consistent with current authorities.
2	Restriction of equipment has caused analysis to support the slightly higher 5 m.p.h. (aerial) and 10 m.p.h. (ground) application wind tolerances. These numbers are consistent with several other agencies consulted.
3	Change made.
4	Change made.
5	We agree completely. Unfortunately, despite searches of all of the data sets we managed to locate, none include all of the specific information needed to compile these statistics.
6	The reference on page IV-131 of the Draft EIS has been deleted.

Mr. John E. Adcock

These comments were previously discussed with Steve McCorquodale and Jim Maxwell of your staff on August 23. If your staff has any questions concerning these comments, please have them call Dale V. Wilhelm at (615) 632-6693 in Knoxville, Tennessee.

Sincerely,

for M. Paul Schmierbach, Manager
Environmental Quality

cc: Mr. Steve McCorquodale
USDA Forest Service
1720 Peachtree Road, NW.
Atlanta, Georgia 30367

305

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

Comments on Alternatives: Alternate A (No Action) is my preference - There is increasingly less "managed" land in the U.S. National Forests seems to be the most logical places to preserve nature as it is - not as we think it should be 1

Why?

Other: Alternate B is my second choice and I would prefer that even the minor use of herbicides be omitted - Many delicate plants never recover or come back after being treated with herbicides - It is a sad state when we sterilize the soil - and completely unnecessary in a wild area. 2

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Janet H. Nehrbass
Name: First MI Last

1225 St. John St.
Street

Lafayette La 70506
City State Zip Code

Response to Comments in Letter No. 305

From: Janet Nehrbass

Comment No.	Response
1	The commenter's preference for alternative A was included in the content analysis of all comments received. National forests are mandated to produce a variety of goods and services. In order to fulfill this mandate, some manipulation of natural processes is necessary. One of the principal assumptions shaping this analysis is that Forest Land and Resource Management Plans establish levels of outputs of goods and services, and this EIS displays several ways to manage vegetation to support those levels in alternatives D through H. Though management for these specific goods and services sounds familiar, it should not be viewed as Forest Service desires or standard practices. Land and resource management planning is an exhaustive process with very intense public participation. Output goals and objectives are based on this partnership with the public. See also response to comments in Letter Number 334, Comment No. 3.
2	The commenters preference for alternative B was included in the content analysis of all comments received. As the EIS shows, the use of herbicides is the least damaging tool available to us in some circumstances. Used carefully, certain herbicides, in some circumstances, minimize the interference necessary in forested areas while insuring a full range of outputs. Mitigation numbers 2 through 8 on pages II-48-50, and number 29 on page II-53 of the Draft EIS are specifically designed to minimize the potential adverse effects of herbicide use on non-target vegetation and threatened, endangered, proposed, or sensitive plant or animal species. Mitigation measure number 4 on page II-48 of the Draft EIS requires that herbicides be applied at the lowest effective rate necessary to meet project objectives, and that typical application rates and work times will not be exceeded (tables 4-4 through 4-6, appendix A). This mitigation measure minimizes risk to human health, wildlife, vegetation, and soil resources. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

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RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Most of the analysis were complete, well researched and presented in a uniform manner. However, some of the material concerning herbicides were either non existant or lacked field testing for any length of time. Also the insertion of the word "preferred" every time Alt. G came up was disturbing.

Why? It seemed to indicate that (Alt. G) was the one that would be used no matter what the outcome of the survey. I feel strongly 1 about inducing more chemicals into our overabused environment. The long term effect on wildlife food chains could upset the delicate balance which it might not regain causing the disappearance of some species.

Comments on Alternatives: Alternatives given seem to cover most of the favored ideas by a wide range of concerned groups and individuals.

Why? If the majority of people surveyed can accept an alternative that does not totally conflict with their ideas. It is possible to gain more public support and eliminate [illegible] and unpopular use of our wild and natural woodlands.

Other? I favor (Alternative D) (No herbicides), some mentioned that provides jobs & acreage cover is about the same as several other alternatives.

Why? 2 There are lawsuits pending now involving 22 people vs. Chemlawn the chemicals used by Chemlawn include 2,4-D and Dicamba. There should be restrictions on all chemicals used because long term effects cannot be foreseen.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Donnie Lee Darnell
Name: First MI Last
6000 Davis Mill Rd.
Street
Greensboro N.C. 27406
City State Zip Code

Response to Comments in Letter No. 306

From: Donnie Lee Darnell

Comment No.	Response
1	See response to comments in Letter No. 150, Comment No. 23; Letter No. 277, Comment No. 1; and Letter No. 52, Comment No. 3.
2	The commenter's preference for alternative D was included in the content analysis of all comments received. The scientific record disclosed by this EIS indicates that use of 8 of the 11 herbicides at "typical" rates (as defined in this document) poses no long- or short-term adverse effect for humans, wildlife or their environments. See mitigation measures 4-6 on pages II-48 and II-49 in the Draft EIS. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

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RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though

However you decide to respond, please help us by making specific and meaningful comments
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Good report and study.

Why?

Covers all areas of concern.

Comments on Alternatives:

1 Alternative G is a good plan that provides for minimum effects to people, plants, wildlife and the environment and at the same time achieve the objective of raising trees, etc.

Why?

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Floyd H. Mize
Name: First MI Last

2506 Fernwood Dr.
Street

Longview, Tx. 75601
City State Zip Code

Response to Comments in Letter No. 307

From: Floyd Mize

Comment No.	Response
1	The interdisciplinary team is pleased the commenter feels the Draft EIS is a good report. The commenter's preference for alternative G was included in the content analysis of all comments received. While alternative G does have some of the favorable effects listed, it also has effects considered unfavorable by other commenters. Please see table II-8 for a summary of effects by alternative.

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RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

1 Draft Needs: ① summary of net increase or decrease of mast production of all alternatives

2 Why? ② Each alternative should list affect on natural diversity

3 ③ Comparison of economic impact upon surrounding counties of low disturbance - labor intensive

Comments on Alternatives: management VS. high disturbance - mechanized + herbicide treatments

The public is very concerned about the long term effects of herbicide use esp. in light of the study of farmers using ~~Why?~~ 2-4 D as published in Journal of American Medical Assn. Why is the Forest service ignoring the public's input + concerns by choosing an alternative that introduces aerial

Other: herbicide application?

5 Alternatives - Alternatives are not clear + present Why? too many mixtures of techniques w/o a clear baseline ~~&~~ for comparison of alternatives + their management techniques

(use additional sheets as necessary)

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David C. Thompson
Name: First MI Last

12515 E 37th
Street

Tulsa OK 74146
City State Zip Code

Response to Comments in Letter No. 308

From: David Thompson

Comment No.	Response
1	Impacts on mast production are dependent on many site-specific variables and should be analyzed at the district level during project site-specific analysis.
2	This is displayed for each alternative through discussions on the effects of each method on woody and herbaceous plant species composition and for wildlife species through discussions on the variety of habitats produced and successional stages provided. These discussions are found in section IV-N of the Draft EIS (summary of impacts by alternative); and can also be compared by alternative in table II-8 on pages II-64 to II-65 of the Draft EIS. See response to comments in Letter No. 265, Comment No. 6.
3	Rigorous economic analysis was not desired by most people who commented. Many people suggested that any economic analysis done be only a simple display of costs. This EIS incorporates the goals and objectives of Forest Land and Resource Management Plans and their economic analyses. Please refer to the appropriate plan for analysis of labor effects.
4	Recent EPA findings have suggested that the referenced National Cancer Institute/Kansas study inappropriately placed all blame for reported incidence of non-Hodgkins lymphoma on 2,4-D. See response to comments in Letter No. 52, Comment Nos. 11 and 12. Data presented in the Risk Assessment and summarized in the EIS indicate that there is little potential for adverse health effects from aerial application of the herbicides analyzed in this EIS. Done with modern helicopter-mounted equipment and only during certain weather conditions (mitigation measure number 15 on page II-51 of the Draft EIS), safety for workers is significantly greater than for other methods of vegetation mangement for almost all workers, and the risk to the general public is negligible. Also, as stated in mitigation measure number 1 on page II-35 of the Draft EIS, vegetation management projects will have site-specific analysis that will examine and evaluate a reasonable range of alternative methods, including the use of methods which do not involve herbicides. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.
5	See response to comments in Letter No. 150, Comment Nos. 1 and 2. Alternative F is the current situation and often serves as a "baseline" (see table II-3 where many comparisons are with F). Another possible "baseline" is alternative A - the no action alternative.

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Appendix A, Pg 5-30, last paragraph: the statement: " the probability, based on ... (at the 95-percent confidence level)," is not statistically coherent. A 95-percent confidence level would appear to refer to a 95-percent confidence interval estimate, but the estimate presented is a point (single value) estimate, rather than an interval. This apparent discrepancy needs to be clarified.. 1

Why?

Comments on Alternatives:

2 Some personal opinions:
(1) Extensive spraying, aerial, if necessary, should be used eliminate kudzu from our southern forests

Why?

(2) Burning should be used where it is consistent with the natural ecology, even letting natural fires burn under control

Other:

(3) Extensive aerial spraying should usually be avoided, if possible.

Why?

(use additional sheets as necessary)

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Roy W. Whitmore
Name First MI Last
108 Bounty Lane
Street
Durham, NC 27713
City State Zip Code

Response to Comments in Letter No. 309

From: Roy Whitmore

Comment No.	Response
1	Editorial changes have been made in the final version of the risk assessment. The words "...an estimate of..." have been inserted immediately prior to "the probability..." in the referenced sentence. It is appropriate to apply a confidence level to an estimate made from empirical data.
2	Comments noted.

310

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

1 Comments on Scientific Analysis: TOO COMPLICATED FOR AN AVERAGE INDIVIDUAL TO UNDERSTAND

Why?

2 Comments on Alternatives: I OBJECT TO YOUR PLANNED USE OF HELICOPTERS TO SPRAY HERBICIDES

I ALSO OBJECT TO YOUR PLANNED USEAGE OF BURNING, BECAUSE YOU ARE PLANNING TO TRY AND ELIMINATE ALL HARDWOOD

Why?

3 Other: SPRAYING WITH HERB. WILL CAUSE UNTOLD DAMAGE TO WILDLIFE ESPECIALLY SMALL ANIMALS & BIRDS NOT TO MENTION GOPHERS WHICH ARE ON THE ENDAINGERD LIST

Why? YOUR PLAN TO BURN IN THE SPRING & SUMMER STINKS.

P.S. 10 YEARS FROM NOW YOU WON'T BE ABLE TO GIVE PINE TREES AWAY, BECAUSE YOU ARE RUINING THE MARKET BY OVER LOADING OUR FOREST W/ PINES

(Use additional sheets if necessary)

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DICK GRAHAM
Name: First MI Last

RT 8 #1014
Street

PETAL MS 39465
City State Zip Code

Response to Comments in Letter No. 310

From: Dick Graham

Comment No.	Response
1	Good communications is a top priority. While many reviewers commented that this very complex technical subject has been handled very well, some may still find it overly complex. The summaries on pages iii through xvi of the Draft EIS attempt to address this problem.
2	Comments noted. Vegetation management projects will not eliminate hardwoods. Mitigation measure number 1 on page II-35, numbers 15, 16, and 17 on page II-41, number 12 on page II-45, and numbers 2 and 5 on page II-48 of the Draft EIS specifically require projects to protect, manage, and/or promote a variety of overstory and understory vegetation when doing vegetation management treatments regardless of method used.
3	The purpose of vegetation management is to reduce, not eliminate, plant competition and to provide a wide variety of plants and habitat conditions beneficial to wildlife. Risk is at an acceptable level, according to EPA standards for terrestrial animals, for all wildlife when typical application rates of herbicides analyzed are used. Mitigation measure number 4 on page II-48 of the Draft EIS requires that herbicides be applied at the lowest effective rate necessary to meet project objectives, and that typical rates and work times will not be exceeded (tables 4-4 through 4-6, appendix A). Also, there are no data to indicate that any of the herbicides analyzed in the Risk Assessment pose a significant risk of toxic effects to gopher tortoise. As with fire, appropriate herbicides, when used properly, may improve gopher tortoise habitat. There is considerable scientific evidence that spring and summer burns are necessary to maintain certain plant communities such as longleaf pine-wiregrass. See also response to comments in Letter No. 286, Comment No. 2.

311

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Why?

Comments on Alternatives: They all have there good and bad points, should be able to get a mixture of all Alternatives to get a satisfatory Alternative for each area.

Why? They all have an increase in some use because of a decrease use in another means, like in crease in herbicide and decrease in fire and mechanical

Other: Alternative (G) I disapprove of because of the increased use of herbicides mostly aerial application I would say cut back on herbicides and increase on mechanical if this Alternative is used

1 Why? Because we still don't know the long term effects of most herbicides, Alternative (G) is only cheaper because of an increased use of herb. and less mech and other means

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

David W Penland
Name: First MI Last

Rt 9 Box 280 F
Street

Winston Salem, NC 27107
City State Zip Code

Response to Comments in Letter No. 311

From: David Penland

Comment No.	Response
1	As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

312

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

Please see enclosed comments in behalf of Birmingham Audubon Society, The Alabama Conservancy and the Alabama Ornithological Society.

Why?

Dear Mr. McCorquedale —

Many thnaks to Cindy and, through her, to you for the short extension of time for receipt of comments in behalf of these three organizations. Notwithstanding the vicissitudes of the mails and that you are probably in a large office, this should reach you by next Monday, Aug. 29. You very

Comments on Alternatives: kindly gave us a good time to review the DEIS and appendix, but there just continue to be so many emergency matters. Please consider our request for Alternative E -- it is workable and avoids so many risks and potential adverse effects. Thank you for your consideration.

Why?

Sincerely yours,

Robert R. Reid, Jr.

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Name: First MI Last

Street

City State Zip Code

2616 Mt. Brook Pkwy.
Birmingham, Alabama 35223
August 24, 1988

Mr. John E. Alcock, Regional Forester
U. S. Forest Service
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

Dear Mr. Alcock:

1 We write in response to the draft Coastal Plain/Piedmont EIS for Vegetation Management and urge strongly that the Forest Service adopt Alternative E for the following significant reasons (references are to pages in the DEIS and its appendix):

(1) It reduces the use of herbicides to the more reasonable figure of 11,500 acres per year, which is less than the present acreage, but should be adequately replaced by the other proposed methods (II-7). Introduction of herbicides into the environment is a practice that should, if possible, be avoided and certainly should be where there are, as is the case here, various adequate substitutes. Herbicides pose a number of risks, some of which are discussed in the EIS and some of which are not (see below). Particularly is this the case where dealing, as here, with numerous forms of animal and plant life, many of which are very small and, hence, fragile but necessary for preservation of the forest ecosystem that is one of the main missions of the Forest Service.

(2) It does not employ the aerial application of herbicides. This is very important since the likelihood of affecting non-target organisms is, of necessity, much greater with aerial application. In addition, even if it is attempted to avoid watercourses, the natural effects of seepage and drainage mean the herbicides are bound to reach non-target organisms, groundwater and even watercourses merely through unavoidable human and mechanical errors (see below).

(3) While use of fire through controlled burns is increased from some alternatives, it is limited to low to moderate intensity with the fires conducted often in the dormant growing season. Controlled burns under any of the alternatives should be limited to those of low to moderate intensity so as to avoid adverse effects on soil productivity that are noted in the EIS as well as possibilities that a fire of greater intensity may get out of control. Prescribed fire is also a very useful tool in managing the recovery of endangered species, such as the Red-cockaded Woodpecker and many of the pitcher plants.

(4) Mechanical methods are limited to techniques causing low to moderate soil disturbance, and your EIS adequately shows many reasons for limiting soil disturbance to moderate levels.

(5) Manual labor is increased and the cost per acre is decreased from present levels. (See graphs at pg. xiv and Table II-9). Alternative E is one of the two with the lowest cost and has the highest employment. This is a particularly desirable factor in the Southeast where, although there is lower employment today nationwide, there is higher unemployment of unskilled and manual labor, particularly in the Southeast. By this method, with minimal instruction, many of the unemployed or underemployed in this area could be placed in a much better economic position, both in the short-run and the long-run, which would probably also have the secondary advantage of relieving the government of some of the costs of its public assistance programs. In view of the present budgetary

Response to Comments in Letter No. 312

From: Robert Reid

Comment No.	Response
1	The commenter's preference for alternative E was included in the content analysis of all comments received. All alternatives, including E, have favorable and unfavorable effects. While alternative E has some of the favorable effects listed, it also has effects such as high risk of accidental injury considered unfavorable by other commenters. For answers to your herbicide concerns, see response to comments in Letter No. 97, Comment No. 2 and Letter No. 70, Comment No. 3. Intensity of prescribed fire and mechanical methods is the same in alternatives E and G. As for introduction of other biological methods, see response to comments in Letter No. 150. Comment No. 13. An EIS is not a justification statement; it is a disclosure of results of scientific analysis to allow for informed decisions. This EIS is about vegetation management, not just herbicides. Regulations of the Council on Environmental Quality for implementing the National Environmental Policy Act at section 1502.14 allow for the identification of a preferred alternative, if one exists, in the draft statement. After careful analysis by the interdisciplinary team and by management, a preferred alternative existed and was disclosed.

deficit and the desirability to enhance the position of such workers ■■ productive members of the economy, it would seen that Alternative E is a most desirable one from this standpoint.

(6) Although biological methods are not discussed in much detail in the EIS and, in fact, only one (grazing) is evaluated, there is greater use of them under Alternative E. We recommend that the Forest Service explore more possibilites of biological management, through such methods ■■ planting hardwood lanes or strips throughout pine stands where there is a monoculture being developed so that those strips could protect or limit those stands from insect infestations (such as the Southern Pine Beetle that has already been regarded serious enough to merit an EIS).

Because of these multiple advantages of Alternative E, which, unlike Alternative D, does not completely eliminate use of herbicides and, hence, makes them available for use in selective locations where considered necessary, it would seem to be clearly the superior alternative. In addition, it would appear from the statements made in the EIS itself, including the appendix, as well as the other factors discussed below, that any increased use of herbicides — and particularly the aerial spraying of them — would be a decision that the Forest Service, in the exercise of its stewardship over the National Forests (which are now more and more refuges for the Nation's plant and animal species) should avoid. We recognize that the Service has already designated Alternative G as its preferred alternative; but, as we are sure you realize and as the litigated cases state, the final decision is not to be made before completion of the full EIS review process. In other words, an EIS is not to be relegated to mere paperwork to justify a decision already made. Please see, for example, Calvert Cliffs Coordinating Comm. v. AEC, 449 F.2d 1109 at 1128 (D.C. Cir. 1971), Burkey v. Ellis, 483 F.Supp. 897 at 914-16 (N.D. Ala. 1979), and cases cited therein. Consequently, we strongly request your reappraisal in light of the above factors and the adoption of Alternative E.

Other considerations bearing on the above are as follows:

2 (A) Evaluation of Alternative. The Service is presumably going to give weight to public input regarding the various alternatives, particularly in view of the wide circulation of the draft EIS (see Chapter VI) and, ■■ stated, it will give greater consideration to views based on reasons and facts rather than responses that are more or less "form" responses. We believe that, in evaluating the responses, the Service should not adopt one based solely on a plurality of those responses giving reasons but on a majority of the total of such responses. For example, if Alternatives A, B, and C are being eliminated from consideration, the views of those respondents should be allocated to Altervatives D or E since they would more nearly reflect their views. In other words, the use of a number of alternatives (eight in this case) should not result in diluting the views of respondents with similar concerns since you can easily determine that one who favors a certain alternative, which is being eliminated from consideration, would then, as his second or third choice, prefer another that is still being considered.

(B) Adverse Effects and Risks from Use of Herbicides. The reduction in herbicide use is, for those reasons, one of the positive factors for Alternative E and a negative factor for Alternatives G and H. Some of the more significant adverse effects are:

3 (a) Toxicity to Humans. While the Forest Service is making some conservative assumptions in preparation of this EIS, it is also making some rather liberal -- and perhaps unrealistic — ones. For example, the cancer risk to the general public is

2 No counting of any sort is done to determine "where to give weight." Selecting an alternative from those fully evaluated requires consideration of all comments (regardless of form) and management needs. Criteria used to develop alternatives (page II-1, Draft EIS), along with environmental effects, give some indication of elements that influence the selection process. The only alternatives eliminated from consideration are listed in chapter II, part C. See response to comments in Letter No. 49, Comment No. 1.

As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

3 Public cancer risks are based on a combined lifetime dose of 9 typical and 1 maximum exposures. Considering the long timber rotation, this is a conservative analysis. Since 2,4-D is a "Class B" herbicide (Draft EIS, pages II-32-33), it will be used only as a last resort (Draft EIS, page II-49, mitigation measure number 6).

based on a calculation of only one maximum exposure in an entire lifetime (App. 5-39), which would seem a rather liberal assumption. The same is true as to the cancer risk to workers in that they receive a maximum exposure in only 10% of their working years. In addition, while it is difficult to determine which herbicides are proposed to be used in what areas, 2, 4-D is always the first one mentioned. It is, we understand, now considered by EPA to be a possible carcinogen, and there is some evidence of its teratogenicity and reproductive toxicity in rats, mice and humans. There has been much concern about this, and this situation has led ChemLawn, the Nation's largest lawn care company, to stop using that herbicide. We do not see these facts mentioned in the draft EIS, but we do note that you are considering 2, 4-D and its relatives, notwithstanding that you do mention EPA is requiring further testing and re-evaluation. It would seem only prudent not to engage in application of a herbicide over wide areas while it is still under investigation, is thought to be carcinogenic and has even been dropped from use by one of its principle users. We recognize that human contact with lawns should be greater than with lands in the national forests; but, especially if aerial application is used, a herbicide could be concentrated in watercourses, and then there will always be greater contact on wildlife and sensitive plants with a herbicide in the national forests than on a lawn.

4 (b) Toxicity to wildlife. It is stated that the risks to wildlife from the use of 2,4-D are moderate as are 2, 4-DP. However, reference to Table 8-1 shows that the extreme dose estimate exceeds in many instances, and approaches in others, the 1/5 LD_{50} dosage, which is considered a significant risk; and, in some cases (in fact, for two of the avian and five of the mammalian species), they approach or exceed the LD_{50} dose, which is deemed unacceptable. The same occurs for 2, 4-DP (Table 8-2) and, as to the comparison between the extreme dose and the 1/5 LD_{50}, for triclopyr (Table 8-14).

Further, in the surrogates for avian and mammalian toxicity, it has been assumed that the most closely related species are used (App. 8-2); however, the surrogates are not actually closely related at all and, except for a few mammals, are in entirely different and removed orders. It must be recognized — and this is very significant — that the laboratory species on which the tests have been made are, in the case of birds, species with much, much greater body weight than those normally found in the forest. The smallest one in the table is the Eastern Bluebird, which must be at least twice the body weight of many of the warblers and similar species that are primary inhabitants of the eastern deciduous forest (the Oak-Hickory forest which is the climax forest of this area, including the Coastal Plain, except along the coastal belt where we understand the climax forest is of Longleaf Pine). It is easy to realize the significance of the small body weight of many avian species if you hold a bird that has been banded or killed through a migration casualty; and, if the estimate approaches the LD_{50} for a bluebird, it doubtless exceeds it for those species. Exacerbating this situation is that these woodland species no longer have as much habitat [redacted] they did previously, whereas birds like the bluebird or flicker are edge species and there are plenty of edges left.

It would appear only a reasonable assumption that, based on the data in the DEIS, the toxicity to many of these smaller bird and mammal species exceeds permissible levels. In any event, as stated at App. 8-1: "Toxicity testing has been conducted on relatively few wildlife species, and the testing has been confined to a few avian and mammalian wildlife species." In view of that situation, it would seem only prudent not to take the risk in applying [redacted] element to the environment that has admittedly not been adequately tested. Particularly is this so where there are workable alternatives, [redacted] mentioned above in the discussion of Alternative E.

4 Mitigation measure number 4 (page II-48 in the Draft EIS) states that "Application rate and work time will not exceed those shown as typical (tables 4-4 through 4-6, appendix A) unless a supplementary assessment of risk establishes that proposed rates will not cause unacceptable risk..." This mitigation is a direct result of the point you are making. Mitigation measure number 8 (pages II-48-49 of the Draft EIS) establishes buffer zones for species likely to be at risk from normal application rates of certain herbicides.

Although some surrogate species are not closely related to the laboratory species, the best data currently available were used. Differences in body weights, food habits, and potential routes of exposure were accounted for in the Risk Assessment. Please refer to chapter IV of the Draft EIS for a discussion of data gaps and costs of acquiring additional data versus the likelihood of risk to wildlife from the herbicides analyzed. See also response to comments in Letter No. 150, Comment Nos. 20 and 23.

5 (c) Adverse Effects of Particular Herbicides. As mentioned above, it is difficult to determine which pesticides might be employed in what areas, but it appears from Table II-1 that practically all being examined are proposed for use everywhere. However, 2, 4-D and its relatives have higher risks to workers, higher risks to threatened or sensitive species, and are the most mobile (xiii, IV-71, 86). In addition, as mentioned above, triclopyr seems to have similar adverse effects; and we suggest that tebuthiuron should be omitted because of its extreme persistence (half-life of over a year). In addition, its extreme doses are far over the 1/5 LD_{50} figures (Table 8-13) for many mammal species and approach it for the smaller birds. (See, in this connection, the fact that many of the species have smaller body weight than those on which the herbicide was tested.)

6 (d) Adverse Effect on Endangered Species. The endangered Red-cockaded Woodpecker forages in mature pines by eating insects found in the bark of the trees. Thus, it is stated that herbicides may affect that endangered species directly through oral or dermal doses, and that two herbicides (2, 4-D and 2, 4-DP) appear to present a significant potential for direct toxic effects, especially through aerial and ground mechnical applications (App. 8-24). Because so much of the National Forests in the Coastal Plain consists of pines that are, or should be, managed for the Red-cockaded Woodpecker (since this is good timber management also), it would seem that those herbicides should no longer be considered for use in the Coastal Plain. In addition, present forest management is eliminating colonies and driving the bird into large southern pine forests, thereby restricting its range from that it formerly occupied. Thus, this is a further reason why no additional action should be taken that might impair the recovery of this endangered species. (Please also consider adverse effects on the pitcher plants and other wetland plants.)

7 (e) Toxicity to Sensitive Plants and Animals. The Forest Service has commendably added to the list of endangered species, lists of sensitive plants and animals that it is desirable to protect. In all of the endangered species listed in Table D-1, herbicides are considered to pose a significant risk of toxic effects. Thus, it would seem that we simply cannot rely on mitigation measures to remove those effects — that is just too great a risk and involves too much chance of human or mechanical error. Consequently, it would seem from the present analyses, herbicides should, for that reason, not be applied, particularly by air.

8 (f) Adverse Effects on Soil Productivity. Soil productivity depends, in large part, on the activity of microfloral organisms. These are the organisms that, through eons of time, broke down the rocks of the earth's crust and helped create our topsoil. Should we destroy them, we will be destroying the soil's productivity. It is stated at III-83: "Herbicide use at typical forestry rates should not significantly reduce the activity of soil biota." However, if a herbicide can destroy a tree, logic would only indicate that the same herbicide would have a more disasterous effect upon smaller plant organisms in the soil. Perhaps you could confine the adverse effects by hand application; but anything else, being broader, would seem to have the potential for very adverse effects on the soil. Again, this is an example of unknown risks that should be avoided. Back in the days of DDT and its derivatives, the applicators did not appreciate the extra risks that those insecticides were having on other populations. Even today, we can spray to kill one insect pest and, by also killing certain predatory insects, cause an outbreak of another pest. These risks to the inter-relationship of all of these forms of life should be avoided if possible and, since in this case there are viable alternatives, it would only seem prudent to avoid those risks.

(Continuation of Forest Service response)

5 Table II-1 discloses concerns with several of the herbicides proposed for use. Mitigation measure number 6 on page II-49 of the draft EIS specifies that table II-1 will be used to determine herbicide/methods which minimize potential negative effects for any project. Based on this mitigation we foresee virtually no use of Class B, C, or D herbicides on national forest lands.

6 The statement on page 8-24 of appendix A should have stated that the potential for risk to red-cockaded woodpecker from 2,4-D and 2,4-DP exists only when these chemicals are applied at extreme rates. This statement has been corrected in the Final EIS. Mitigation measures in chapter II of the Draft EIS prohibit application at extreme rates, making this risk insignificant. Adverse effects on plants and animals are discussed in chapter IV and appendix D of the Draft EIS.

7 We disagree. As indicated in table D-1, in the absence of any mitigation measures, herbicides do pose significant risk of toxic effects to threatened, endangered, proposed, and sensitive species. However, based on the hazard, exposure, and risk analyses for wildlife and aquatic species (sections 6, 7, and 8 of appendix A) and the determinations made in the Biological Evaluation (appendix D), the mandatory mitigation measures in chapter II of the EIS regarding inventory and site-specific analysis requirements; and herbicide selection, handling, application rates, application method selection, drift control, and buffers will adequately protect these species from adverse effects.

8 The consensus among scientists that have studied the topic is that use of herbicides at our low rates (Draft EIS, page II-48) does not yield high enough concentrations to adversely affect soil microflora (appendix C, page C-10). These herbicides are not general biocides but are formulated specifically to affect the more complex metabolic processes of higher plants that are absent in microflora. The major threat to soil productivity is not toxicity to soil organisms, which recover rapidly from disturbance, but loss of organic matter and nutrients (Draft EIS, pages IV-73-84).

9 (g) Comparison With Other Risks. We note the comparison in App. 5-42 of cancer risks to other common risks. We feel that such a comparison should not be made. The addition of extra herbicides to the environment should be considered the incremental risk that it is. People are already using the automobile extensively or taking transcontinental air trips and such, so it would seem only reasonable to consider that the addition of another risk should be considered as an addition to those existing conditions. In other words, it would be unreasonable to expect people to give up certain traveling habits in order to spray additional herbicides in the National Forests; thus, when placed in that perspective, that comparison should not be used as a justification for subjecting people or wildlife to additional risks from herbicides to which they are not now subjected.

10 (C) Additional Adverse Effects and Risks From Aerial Application. We believe it is quite proper for the Chief of the Forest Service to currently suspend all aerial applications of herbicides. (II-74). Non-target vegetation is obviously at a higher risk (II-124, 132), and the aerial application, of necessity, increases the risks of accidental pollution of streams (Intro. xiv). Recent experience with pesticides should emphasize this problem. The Agriculture Department sets out definite guidelines to curtail the additional risks from aerial spraying. Nevertheless, there is human error. The spraying is done too high from the ground; there is wind drift that brings it onto additional areas or watercourses; and, in recent cases of spraying guthion, people have actually been hospitalized. It can be said that these were errors and contrary to the rules for application, but aerial application inherently introduces such risks and they are just bound to occur. Thus, in view of the problems with herbicides outlined above, certainly aerial application should not be employed. Hence, Alternatives G and H would not be appear to be acceptable risks for the forest environment that the National Forests are intended to preserve.

11 (D) Need for Hardwood Strips as a Management Tool. It is reasonably common knowledge, and is evidenced by the amount of controlled burns included in Alternatives D-G, that much of the National Forests in the Coastal Plain of the Southeast and Piedmont are being managed for the growth of pines. That has resulted in much controversy over insect invasions that are attracted by a monoculture and ▪ is evidenced by the recent EIS for the Southern Pine Beetle. One management tool that should be used, when such pure pine stands are created, is to intersperse among them hardwood lanes or strips so as to prevent the spread of any beetle or other insect infestations. This is similar to the present practice of cutting lanes similar to fire lanes around them after an infestation occurs, but would be preventing it in advance and probably with much less expense. These lanes, for purposes of conservativism, sould probably be twice the width of the fire cuts now made by the Service around beetle infestations and could be accompanied, if deemed necessary, by open lanes to make a greater break in the monoculture.

The Forest Service seemingly considers this a question of silvaculture and is not considering it in this management EIS (I-6); however, such hardwood lanes are a management tool and would seem to meet the definition of vegetation management set forth at the beginning of the introduction. This is a tool that should be employed as long as you are to permit the development of pure pine stands because, just as you would eliminate some hardwoods from those pure stands, experience now dictates that ample hardwood strips be planted to break them up so as to protect them against what is at least sometimes considered a very serious insect problem. Those hardwood strips would also promote one of the desired ends of forest management, i.e. providing, through a diversity of habitat, a variety of wildlife.

(E) Need to Manage for the Endangered Red-cockaded Woodpecker. This endangered species finds its primary recovery lands on the National Forests of the Southeast.

(Continuation of Forest Service response)

9 Disclosure of the fact that the cancer risk from herbicide use is less than many routine cancer risks accepted by the majority of modern Americans is certainly justified as putting the specific risk into proper perspective. Additional information relating to cumulative effects is impossible to evaluate on a sub-Regional basis, other than to state categorically that no evidence exists indicating the possibility of a significant adverse effect to human health or the environment from herbicides used in the low quantity we mandated within this EIS.

10 Technology required for the application of herbicides is significantly lower risk than that used to apply insecticides (eg. guthion). Risk of drift is minimal when mitigations are followed. The data presented in the EIS suggest that mitigated as in alternative G, herbicides can be aerially applied in a manner which compares favorably with other vegetation management tools when human health and environmental concerns are paramount. See response to comments in Letter No. 97, Comment No. 2 and Letter No. 70, Comment No. 3.

11 The primary issue of management of insect infestations is outside the scope of the vegetation management EIS. However, mitigation measure number 17 on page II-41 of the Draft EIS does provide for the management, protection, and/or promotion of a variety of overstory and understory species when wildlife or timber stand improvement, and site preparation projects are conducted. Additionally, mitigation measure number 3, under site specific analysis, on page II-46 of the Final EIS requires that Integrated Pest Management (IPM) principles be incorporated into project site-specific analysis.

12 Its requirements are comparable to those for developing good lumber pines. Thus, a significant portion of the forests, if they are converted to pine monocultures, should be managed for this endangered species. In this connection, the Red-cockaded requires mature pines (nesting sites in Loblollies are usually in trees 70-90 years old and rarely in those 30-40 years or less), and the species needs for nesting and foraging from 100-200 acres/clan of such pines in a park-like open stand of not more than 50-80 square feet of basal area per acre. (You doubtless know of the requirements for this species but, if desired, we shall be glad to send a short brochure outlining those requirements.) Studies have also shown that high pine densities, such as basal areas of 150 square feet/acre or more, are conducive to pine beetle infestation. Thus, the same management practices that favor the woodpecker would develop more healthy trees that would be more resistant to disease.

13 (F) Preservation of Bottomland Hardwoods. Your EIS indicates your appreciation for the need for their preservation, but we do mention here that no herbicide should be used on bottomland hardwoods because of the likelihood of flow or seepage into watercourses. In addition, that habitat is recognized as one of the Nation's most productive yet most rapidly disappearing habitat types, especially in the Southeast. However, present vegetation management has encroached on them too much; thus, we really need management for preservation of more bottomland hardwoods in order to maintain water quality, recharge groundwater (which is becoming more and more of a pressing problem), and obtain the original habitat diversity of the National Forests.

We shall appreciate very much your review and consideration of the above comments. While we recognize that they are somewhat lengthy, that was necessitated by the fact that the draft EIS, with appendix, is itself a rather lengthy document. Because aerial application of herbicides poses so many problems and has been suspended by the Chief of the Forest Service, we are sending a copy of this letter to him; and, particularly because Alternative E poses the advantage of increased employment of unemployed and underemployed people in Alabama, we are sending copies to our senators and some of the representatives in whose districts parts or all of the National Forests covered by this EIS lie.

This letter is submitted in behalf of three organizations — Birmingham Audubon Society, The Alabama Conservancy, and Alabama Ornithological Society — whose members reside throughout Alabama and surrounding states and who are concerned with the preservation of our natural resourses. They represent an aggregrate of approximately 6,000 individuals, many of whom reside in the Coastal Plain, so when appraising their views expressed in this letter, please give due weight to the fact that it is not written in behalf of a single person. Your consideration will be greatly appreciated.

Sincerely yours,

Robert R. Reid, Jr.

Robert R. Reid, Jr., for Birmingham Audubon Society, The Alabama Conservancy, and the Alabama Ornithological Society

RRR:pjk

cc: Chief, U. S. Forest Service
Hon. Howell T. Heflin
Hon. Richard C. Shelby
Hon. Bill Nichols
Hon. Tom Bevill
Hon. Claude O. Harris
Pres. & Cons. Chmn., BAS
Exec. Director, Ala. Conservancy
President, AOS

(Continuation of Forest Service response)

12 Pine stands are managed for the red-cockaded woodpecker under guidelines established by the Species Recovery Plan and Forest Service Handbook 2609.23R.

13 Forest Land and Resource Management Plans prescribe that bottomland hardwoods will be retained and not converted to another forest type. But vegetation management, including selective (target-specific) herbicide use, may be needed for purposes such as wildlife or timber stand improvement. Mitigation measures (Draft EIS, page II-53) require buffers along lakes, streams, and wetlands; only aquatic-labeled herbicides may be used within buffers, and then only when a site-specific analysis shows a definite need for them. Mitigation measures (Draft EIS, page II-48) also require low application rates, which are reduced another 40-70 percent by selective treatment. These constraints will prevent pollution of surface or ground water by herbicides. See also response to comments in Letter No. 70, Comment No. 3.

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: SCIENTIFIC ANALYSIS IS THOROUGH

Why? FOREST, WILDLIFE, SOIL, WATER, AND HUMAN CONSIDERATIONS ARE WELL RESEARCHED AND DOCUMENTED. PHOTOS, MAPS, TABLES, AND GRAPHS ARE WELL DONE.

Comments on Alternatives: I PREFER ALTERNATIVE "D" AND SUGGEST THE FOLLOWING AMENDMENTS:

1 1) LIMIT PRESCRIPTION BURNS TO LEVEL TERRAIN WHICH HAS THICK, MOIST TOPSOIL DEVELOPMENT. PREFER DORMENT SEASON (REASON: TO AVOID SOIL STERILIZATION)

2) LIMIT MECHANICAL OR MANUAL METHODS TO HAND HELD TOOLS IN AREAS BORDERING WATERWAYS (REASON: TO MINIMIZE TOPSOIL RUNOFF)

2 Why? "D" is low impact 3) TRAIN EMPLOYEES TO IDENTIFY FOOD PRODUCING SPECIES FOR WILDLIFE POPULATIONS I.E. MAXIMUM DIVERSITY SHOULD BE IMPORTANT OBJECTIVE.

THE DISADVANTAGES OF ALTERNATIVE D ARE TOPSOIL OR SEDIMENT RUNOFF AND EMPLOYEE SAFETY USING MANUAL METHODS BOTH OF THESE FACTORS CAN BE MINIMIZED WITH CONCENTRATED ENGINEERING AND SAFETY INSTRUCTION INCREASE

Other: AN ADVANTAGE OF ALTERNATIVE D IS THE INCREASED EMPLOYMENT OPPORTUNITY. SINCE THE SAFETY RISK IS HIGH, BOTH NEW AND OLD EMPLOYEES SHOULD UNDERGO AN INTENSIVE SAFETY TRAINING PROGRAM WITH POSSIBLE U.S.D.A. INCENTIVES FOR MAINTAINING A SAFE WORK RECORD.

Why? ALTERNATIVE D OFFERS GOOD LONG TERM POSSIBILITIES FOR THE FOREST, WILDLIFE, AND WATER. IT COULD BE USED TO INCREASE THE STAFF OF HIGHLY TRAINED FOREST WORKERS BEGINING WITH DIRECT EXPERIENCE IN THE FIELD. (use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

PLEASE CONTACT ME IF I CAN HELP IN ANY WAY.

GARY S. SMITH
Name: First MI Last
617 SUNSET DR.
Street
BAY ST. LOUIS MS. 39520
City State Zip Code

PHONE:
(601) 864-7392
OR
(601) 467-4976

Response to Comments in Letter No. 314

From: Gary Smith

Comment No.	Response
1	The commenter's preference for alternative D was included in the content analysis of all comments received. Mitigation measures (pages II-44-46 of the Draft EIS) require slash burns to be light to moderate and growing season burns to be staggered with dormant season burns where used. Pages IV-76-78 in the Draft EIS show that these measures should protect soil productivity. Page IV-78 (Draft EIS) also agrees that burning when duff and soil are moist will control soil heating and exposure. Streams are protected from sediment by buffers (Draft EIS pages II-44, 47) whose width has been shown to trap nearly all sediment at least 95 percent of the time.
2	Providing a variety of both soft and hard-mast producing species is an important consideration in vegetation management projects. Mitigation measure number 17 on page II-41 of the Draft EIS specifically addresses this concern. Professional and technical employees receive plant identification training not only through university, college, technical training schools, and continuing education courses, but also through on-the-ground plant identification training sessions conducted by the Regional Botanist. See also response to comments in Letter No. 124, Comment No. 12.

319

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis:

The analysis is sufficient.

Why?

Comments on Alternatives: Alternative G is a good selection except for the amount of herbicides use planned.

Why? Aerial herbicide application cannot be controlled well enough to prevent killing other than target vegetation and pollution of streams. From a wildlife mgt. standpoint herbicide use, particularly aerial, is undesirable.

1

Other:

Why?

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Name: First MALCOLM G. EDWARDS Last

Street 78 RUSSELL RD.

City LAWRENCEVILLE, State GA Zip Code 30243

Response to Comments in Letter No. 319

From: Malcolm Edwards

Comment No.	Response
1	Please see response to comments in Letter No. 311, Comment No. 1; and Letter No. 271, Comment No. 1. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

SIERRA CLUB The Florida Chapter

Post Office Box 2436
Lake City, Fl 32056
August 26, 1988

Mr. Jack Alcock
Regional Forester - Region 8
1720 Peachtree Road, Northwest
Atlanta, Georgia 30367

Re: Draft Environmental Impact Statement and Appendices for Vegetation Management - Coastal Plain/Piedmont April 1988

Dear Jack:

The Sierra Club appreciates the opportunity to review the DEIS for Vegetation Management in the Coastal Plain/Piedmont. We offer the following comments and observations for your consideration in this regard.

The DEIS provides a general review of eight alternative management strategies for control and manipulation of vegetation on national forests in this area. The purposes of this control are for regeneration of timber, timber stand improvement (release, pre-commercial thinning), wildlife habitat improvement (including threatened and endangered), roads and trail maintenance, range and fuel reduction. The methods presented include prescribed fire, herbicides, mechanical, manual and biological (range).

As a general observation, may we say that we are disappointed with the focus on herbicides as a major management tool, and with the recommendation to substantially increase this use on the national forests, particularly by aerial application, in the future. As you know, Sierra is one of several conservation groups participating in an Appeal of the Florida Land and Resource Management Plan. A very positive aspect of this process has been a change in emphasis from more intensive practices to less intensive management, including increased use of prescribed fire necessary to properly maintain Florida's fire-evolved plant and animal communities. It seems to us that the recommendations in the DEIS, if approved, would be a step backward from the substantial progress which has been made in this effort, and we hope that you will include consideration of this aspect in your final decision.

The DEIS, in our opinion, appears to favor managed outputs, i.e., timber production, at the expense of other uses on the national forests. These are, primarily, watershed protection and wildlife habitat, including that of endangered and threatened species.

Recycled Paper

It offers a clear argument for using the prescribed fire method, while demonstrating the inappropriateness of herbicides. Yet the recommendation proposes increasing this last-named method, even in light of an inadequate data base and the higher costs.

The Forest Service has a legal mandate to manage for species diversity (NFMA 219.29, 219.27(a)(5), 219.27(a)(8), 219.27(g), and Section 6(g)(3)(B). Broadscale use of herbicides, especially aerial or other types of broadcast applications, has as its primary objective the reduction of vegetative cover and, as a direct consequence, a gross reduction of species diversity. It is non-selective and has high potential for significant adverse impact on listed and sensitive plant species, including terrestial orchids (which are, by the way, omitted from this listing in the DEIS). The use of the herbicide method would, therefore, be contrary to the NFMA requirement to maintain and provide for native species diversity on the national forests.

1

Specific comments on the alternative management strategies are offered as follows:

Prescribed fire: It is our position that this alternative is the appropriate method for managing vegetation on national forests in the Coastal Plain/Piedmont.

Plant and animal communities, including threatened and endangered, which occur here are fire-evolved and are thus dependent on frequent (2-3 yrs) fire for maintenance and survival. This dependency is recognized on pp II-11, III-11, IV-34, IV-30 and 31 of the DEIS.

The importance of seasonal burns to these native communities, including sandhills, pine flatwoods, pitcher plant savannahs, cypress-gum swamps and others is well-documented. We are enclosing, as an example, a paper by William J. Platt, et al, entitled "The Population Dynamics of a Long-lived Conifer (Pinus palustris)," which includes a discussion of the importance of pyrogenicity to the longleaf-wiregrass association.

Prescribed fire in fire-adapted communities, such as longleaf pine, enhances reproduction (DEIS IV-33) by reducing competition. It also lessens or eliminates negative impacts on soil and hydrology and other forest resources as is likely to occur when intensive methods of regeneration are used, such as mechanical and herbicides. To efficiently reduce competition and achieve the highest success, fire in the growing season should be emphasized.

1a

We do not favor exclusion of oak, oak-gum-cypress and oak-pine stands (p. II-45) from prescribed fire. Wherever possible, fire should be allowed to burn naturally through these habitat types.

2

Response to Comments in Letter No. 320

From: Judy Hancock

Comment No.	Response
1	As indicated on pages I-6 and 7 of the Draft EIS, issues such as silvicultural systems, harvest cutting methods, and landscape-wide diversity were addressed in Forest Land and Resource Management Plans (prepared under 36 CFR 219) and are outside the scope of this document. However, this EIS is prepared to conform to the requirements of the National Environmental Policy Act and as such it displays effects of vegetation management methods that may be used to implement Forest Land and Resource Management Plan goals and objectives on Coastal Plain/Piedmont forests for the programs detailed in section I-A. Pages IV-30 to IV-72 of the Draft EIS specifically display the effects of vegetation management on plant and animal communities. Mitigation measures, such as numbers 1 and 2 on pages II-35 to 37; numbers 15 and 17 on page II-41; numbers 12 and 13 on page II-45; numbers 2 and 5 on page II-48; number 8 on page II-49 and 50; and numbers 1, 2, and 3 on page II-54 of the Draft EIS are specifically designed to protect and in many cases enhance plant and animal diversity. Prior to any vegetation management treatment, projects will undergo site-specific analysis which determines appropriate methods and tools, intensity and selectivity of applications, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. As stated in mitigation measure number 1 on page II-35 and number 2 on page II-48 of the Draft EIS, some of the environmental effects considered include effects on vegetation diversity, nontarget vegetation, long-term soil productivity, water and air quality, wildlife and fish, cultural resources, and threatened, endangered, and sensitive species. The requirement of site-specific analysis, mitigation measure number 1 on page II-35 of the Draft EIS, also states that a reasonable range of alternative methods, including the use of methods which do not involve herbicides, will be examined and evaluated. Mitigation measure number 5 on page II-48 further directs that prefernece be given to those herbicide application methods which affect the minimum amount of vegetation while meeting project objectives. The preferred alternative (G) in the Draft EIS does not advocate the "broadscale use of herbicides." The Draft EIS displays the effects of five methods of vegetation management. In the Coastal Plain/Piedmont methods other than herbicides are projected to be used on 91 percent of the total acres treated in the preferred alternative G in the Draft EIS (page II-9); while herbicide use comprises approximately 9 percent of the entire vegetation management program. In section B (chapter II) of the Final EIS, we have further displayed the breakdown of projected acres treated per year for all methods and alternatives; and have displayed the percentage of herbicides applied using selective vesus broadcast techniques. Use of herbicides is permitted by both the wording and intent of NFMA. Mitigations in chapter II, section E, are adequate (according to the analysis presented) to ensure environmental protection.

(letter continues on next page)

As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

1a Neither the use of mechanical nor herbicide methods is necessarily "intensive." When mitigation measures in chapter II are applied, both can be used in more or less intensive treatments. Low intensity mechanical and selective herbicide treatments may be appropriate tools in some fire-adapted communities.

2 Mitigation measure number 12 on page II-45 of the Draft EIS states that these areas are protected when prescribed fire is applied, either thorugh exclusion or use of low-intensity fire. Therefore, depending upon site-specific determinations, fire could be allowed to burn naturally through these areas. However, where characteristics such as young age classes or small size classes of hardwoods occur, fire may have to be excluded in order to protect them.

The use of firelines (DEIS II-44) as a control method needs research in order to eliminate or at least diminish the detrimental effects of this practice on native ecosystems. While II-44(8) states that firelines are not plowed within transition zones, we find this not to be the case. We have also observed firelines plowed in or adjacent to savannahs, and frequently around isolated wetlands and wetlands strands. Adequate research to provide for proper design of firelines and to eliminate their use to the greatest extent possible is an important research need.

3

4 Consultation with the forest plant ecologist in the placement of all firelines should be required. For national forests which do not have a plant ecologist, we strongly recommend that filling of such a position be a top priority.

The costs associated with prescribed burning (Table IV-18, p. IV-109) are substantially less than those for other methods. As taxpayers, as well as ecological advocates, we strongly recommend the use of this more cost-effective method of vegetation management. Average cost for prescribed fire is $4.69, for herbicides $68.95, manual $69.95 and mechanical $75.49.

Mechanical: These methods include mowing, chopping, shearing, scarifying, ripping, piling, bedding, raking and disking. All cause soil disturbance (IV-37), and subsequent impact on native communities in varying degrees.

The species composition discussion on p. IV-40 states that shifts in species composition are caused by use of mechanical methods and that, in general, the more intensive a treatment the greater the shift in species composition. Loss of species diversity, as this statement implies, is contrary to mandated objectives relative to maintenance of biodiversity (see citation, p. 2)

5 Mechanical site prep enhances species such as saw palmetto and gallberry which may impede reproductive success. Sensitive plants, including terrestial orchids, are lost or diminished in terms of abundance. Habitat quality for associated fauna, including both game and non-game species, is reduced and may be eliminated.

5a Bedding is frequently used on Florida nfs to provide for regeneration of slash and longleaf pine on the wetter pine flatwoods. Longleaf does occur here in a mixed situation and is not confined to sandhills. It is our experience that these beds remain in the landscape and do not settle to natural grade. This can impede the sheet flow of water through the flatwoods to wetland areas and affect hydrology on the site. Appropriate use of prescribed fire will provide opportunity for natural regeneration and therefore eliminate, for the most part, the need for bedding. An evaluation of current stocking levels will be necessary to adjust requirements to historical levels (II-38, Table II-2).

(Continuation of Forest Service response)

3 Mitigation measure numbers 7, 8, and 9 (page II-44) of the Draft EIS have been revised in the Final EIS to prohibit firelines on such sensitive sites except in very rare cases. These measures will become effective when the EIS becomes final.

4 During site-specific planning for a prescribed burn, (see mitigation measure number 1 on page II-43 of the Draft EIS), where areas are identified that contain special considerations or sensitive features that need to be protected, placement of firelines will be made only after consulting the appropriate expert. However, this will not always require the expertise of a plant ecologist. Based on site-specific analysis, fireline placement may also require coordination with a wildlife biologist, soil scientist, hydrologist, archaeologist, etc. Fireline placement has been added to the list of possible coordination requirements in mitigation measure number 1 on page II-52 of the Final EIS. See also response to comments in Letter No. 340, Comment No. 26.

5 In general, mechanical site preparation has been found to enhance the success of some plant and animal species, while negatively affecting other plant and animal species (see chapter IV discussion on pages IV-37 to IV-41, IV-66 to IV-69, and IV-72 of the Draft EIS). Site-specific analysis (mitigation measures 1 and 2 on pages II-35 and II-36 of the Draft EIS) considers methods and tools, intensity of application methods, and potential environmental effects of any method considered. This includes an evaluation of the potential effects on threatened, endangered, proposed, and sensitive species. All available inventories of these species are considered; when unavailable, inventories will be made if the affected site has high potential for occupancy by a threatened, endangered, proposed, or sensitive species. Figure D-1 of the Final EIS traces the process required to ensure adequate assessment of potential harmful effects to these species. These measures are intended to ensure sensitive species viability and prevent population declines that would result in Federal listing.

5a Mitigation measure number 6 (page II-47 of the Draft EIS) requires initial bed height (before settling) of 15 inches or less. This constraint will prevent bedding from impairing the hydrologic function of the level sites on which it is used.

Manual: If properly utilized, manual methods are an acceptable technique in vegetation management. Selective cutting for timber or to remove undesirable vegetation may be beneficial to the forest ecosystem.

Herbicides: Three applications of this method are proposed: aerial, manual ground and mechanical ground. Pages 2-3, Table 2-1 in the Appendices presents the number of acres treated annually with herbicides and the maximum anticipated in the future. The current applications are: aerial 3,600 ac; mechanical 17,200 ac; and manual 89,550 ac. The future maximums are: aerial 18,000 ac; mechanical 41,700 ac; and manual 170,300 acres. 6

We are very concerned about the effects of this type of vegetation management on native communities which occur in the Coastal Plain/ Piedmont. There are a number of statements and tables in the DEIS which reinforce our concern, particularly those relating to the risks and unknowns associated with this method. Page xiii states that "All herbicides and additives are safe for the public when applied using typical rates and methods," and that "All herbicides and additives are safe for terrestial and aquatic wildlife when applied using typical rates and methods." These statements are rather amazing when considering the scientific uncertainties about effects, particularly on the long-term.

P. ii-32, "Aerial operations are broadcast applications, and the pilot has limited ability to treat specific target plants." Application methods available for use identify eight methods which are presented from most to least target specific (II-49(5)). Helicopter broadcast treatments (aerial) are #8 on this list.

P. I-9 identifies several areas of uncertainty in judging risks to human health from the Forest Service's herbicide program. It states that (1) safe levels used in comparing estimated exposures are the results of toxicity tests on lab animals, where dose levels produce no observed effects, the uncertainty being the perceived safe level for the general population relative to no-observed effect levels in lab animals; for this uncertainty a margin of safety has been calculated by the preparers. The second area of uncertainty is in judging the risk to humans of doses that may be received once or a few times in a person's life (accidental worker doses and all doses to the public are included in this category); a different calculation is used to address #2. The third area of uncertainty involves the estimation of human doses likely to occur in using the herbicide method. Several assumptions are made, including whether or not the public is likely to be exposed to treated areas due to their remoteness. 7

Accessability on Florida's national forests is very high and the likelihood of exposure, we think, would be commesurate with this. It is probable that roads and trails on nfs in other states in Region 8 are equally abundant.

The Forest Service encourages the public to visit and appreciate their national forests. Does the Service wish to be in the position of

6 Table 2-1 in the Risk Assessment contains field estimates of potential aerial application, which is currently suspended. Better estimates of herbicide use by alternative are in Final EIS section II-B.

Primary concern reflects information extracted from the summary which is not disclosing basic data but rather summarizing conclusions already presented in the document. Choice of the word "safe" in this context was unfortunate since safety can not be proven or even conclusively projected. Within the body of the text "low-risk" has been used and corrections will be made in the final version of the summary. We recognize that there is risk from any management tool employed, however, risk management -- not zero risk -- is our chief concern.

7 This comment reiterates information presented in the draft EIS. Unfortunately point #1 misconstrues what is being said in the EIS. First and foremost, the document does not discuss safety but rather compares risks, which can be quantified. Margins of safety used in comparing risk (exposures are not compared anywhere) are computed to reflect uncertainty resulting from using laboratory animal NOEL's to predict human responses, and also to account for the differences in human response.

In this document we have complied with the Council on Environmental Quality regulations on incomplete and unavailable information (1502.22). There have been recent changes about how to evaluate incomplete or unavailable data. The Council on Environmental Quality issued regulations in November 1978 (40 CFR 1502.22) which required that a worst case analysis be performed to estimate risk of relevant missing information. In 1986, they modified this provision to require analysis of "... reasonably foreseeable significant adverse effects to the human environment ..." (40 CFR 1502.22). Recognizing that there are significant incomplete or unavailable data related to herbicide use, we have prepared a risk assessment (appendix A) using the 1986 requirements. In the risk assessment, we evaluate maximum (or extreme) and accident scenarios which are similar to the worst case analyses required under the earlier regulations. Thus, we have attempted to address both sets of regulations in our analysis.

Use of risk assessments is scientifically accepted, and ours has undergone extensive scientific review (Draft EIS, page V-7). Modeling is used in the risk assessment to project incomplete or unavailable data. While there are significant data gaps, modeling is displayed which shows estimates of the potential effects of herbicides on various environmental elements. When modeling was done we always made conservative (health and safety protecting) assumptions to fill data gaps. Since most of the models multiply one risk times another, we have actually magnified the estimate of risk far beyond what is probable in the field. Where meaningful comparisons could be made between available data, quantitative analysis was done. Where necessary, analogy was used to develop these estimates. Otherwise, qualitative estimates were made. The risk assessment looks at a range of scenarios, from highly probable (typical) to unlikely (maximum) to very unlikely (accidents). Sufficient information exists concerning herbicide applications to make reasonable estimates of potential exposures under each alternative. The effects of those exposures are evaluated based on what is known about the toxicity of each herbicide from previous accidental and controlled

posting off-limits signs and notices due to the dangers of herbicide spraying? We think and hope not.

Page IV-8 discusses gaps which exist in our knowledge of the effects of herbicides on human health, both from direct dose and from exposure. IV-8(1) states that moral restrictions and laws generally prohibit collection of data concerning human toxicity. (2) notes that data on field worker exposure are not available for all herbicides, but only for a few. IV-9(3) advises that oncogenicity (ability to cause either cancerous or non-cancerous tumors) data for most of the herbicides reviewed in the DEIS are either not available or are disputed.

Another area of uncertainty is the effects on human health from smoke inhalation (IV-9(4)) where fuels have been previously treated with herbicides. (5) Experimental information on the public's exposure to herbicides applied using current methods is not available.(6) Field studies on residue levels in plants or animals in and around treatment areas are lacking for several herbicides. (7) Information about synergistic effects of herbicide combinations with other herbicides and with inert ingredients is unavailable. (8) Data relating to cumulative effects are unavailable.

While we appreciate the effort that preparers have expended in compiling the risk assessment in an attempt to address the above listed knowledge deficiencies, we do not believe that this can be adequately done. And, given the opportunity to use prescribed fire in most situations, we are perplexed with the Service's recommendation to increase or even utilize the herbicide method at all.

8 Buffers to protect lakes, wetlands, perennial or intermittent springs and streams from adverse effects of herbicides are discussed on p. II-53. At least two of the three national forests in Florida contain very extensive wetlands' ecosystems. We strongly believe that adequate protection during aerial application would not be possible on these systems. How would drift be controlled, for example, and how would residues in water, wildlife and fish be identified and eliminated?

8a P. 4-19 states that the potential for herbicide sprays to drift onto adjacent lands or into nearby bodies of water was assessed based entirely on the results of empirical studies reported in the scientific literature. Can the public with confidence be assured that these studies can be translated to the different national forests and the various habitats which occur on these different areas. We think not.

9 Pages IV-48 through 62 discusses effects of herbicides on wildlife, both directly and indirectly by altering vegetative species composition and structure. It states that surrogate species were selected to represent animals which occur in the Coastal Plain/Piedmont as toxicological data are unavailable for most wildlife species. Terrestrial mammals, birds, amphibians, reptiles and invertebrates, and fish and aquatic invertebrates were selected, although in our opinion the taxonomic representation of test organisms is inadequate to properly considering potential impacts on the broad array of species which

human exposures and from laboratory animal studies. This risk assessment method is widely accepted in the scientific community. The risk assessment is supported by background herbicide profiles including those found in USDA Forest Service Handbook 644. Where information was found to be insufficient to evaluate what effects might occur, conservative assumptions were made. For example, 2,4-D was assumed to present a cancer risk although EPA considers the available data to be insufficient to draw this conclusion. Acute toxicity testing on the full formulations is part of the available data on each herbicide. The chronic toxicity of the inert ingredients in each formulation is evaluated for those inert ingredients considered by EPA to pose a risk of health effects (List 1 or 2).

8 Mitigation measure number 27 on page II-53 of the draft EIS requires that a buffer of 100 feet be maintained from all lakes, wetlands and perennial or intermittent streams or springs. Where wetlands ecosystems are extensive, such as you describe, it will rapidly become impractical to employ aerial application. However, this document is sub-Regional in nature and the wetland situation you describe for Florida is not the general pattern for Coastal Plain/Piedmont forests. See response to comments in Letter No. 70, Comment No. 3.

8a The studies referred to covered the full range of application methods and vegetation and land types in the South. We have a high degree of confidence in the integrity of their findings.

9 See discussion in chapter IV of the Draft EIS concerning selection of representative species (page IV-49) and costs of additional research vs potential risks (pages IV-50 to IV-52). Additional representative species would have provided little additional valuable information. Please also see response to comments in Letter No. 73, Comment No. 148.

occur on the Coastal Plain/Piedmont. In addition, IV-50 recognizes that the Service is faced with "an overwhelming number of species with data gaps and inconsistencies in data."

Data gaps which result in uncertainty about reasonably foreseeable significant adverse effects on wildlife include (1) basic data about acute, subchronic and chronic toxicity are lacking for many animal groups; species-specific information are generally unavailable. (2) data on animal exposure to herbicides are unavailable; dermal penetration rates, risk of exposure and probable rate of exposure are not available. (3) field studies on chemical residue levels in or on plants in treated areas are lacking for most herbicides. (4) data on synergistic effects of herbicides and inert ingredients on wildlife are unavailable. (5) carcinogenic and mutagenic potential are unreported for most chemical/animal groupings. (6) data on cumulative effects of herbicides on wildlife are unavailable and (7) data concerning relationships between specific chemicals and individual species' habitats are, for the most part, unavailable.

10 Obviously, there are formidable uncertainies associated with the herbicide method of vegetation management. Given these uncertainties and the prohibitive cost (IV-51) to fill these data gaps, and the opportunity to use prescribed fire for vegetation control, we fail to comprehend the recommendation for increased use of herbicides on national forests in the Coastal Plain/Piedmont.

To continue, page 6-15 of Section 6, Wildlife and Aquatic Species Hazard Analysis, summarizes information about the toxicity to aquatic species of the herbicides and additives considered for use in Region 8. Let us review the various herbicides listed in this section as they pertain to amphibians:

- 2,4-D: the summary states that this product is "practically nontoxic to amphibians (Johnson 1976)."

- 2,4-DP: to quote this summary, "No long-term studies are available for any aquatic species."

- Dicamba: according to the statement, dicamba is only slightly toxic to most aquatic organisms. However, no long-term studies have been reported with aquatic organisms.

- Fosamine: fosamine is considered, per the summary, to be practically nontoxic to fish and invertebrates. However, page 6-24 states that no toxicity studies with amphibians have been reported and no long-term studies have been reported with aquatic organisms.

11 - Glyphosate: this summary advises that Region 8 has proposed to use three formulations of glyphosates: Roundup, Rodeo and Accord. Because of its surfactant content, Roundup is stated to be much more toxic to aquatic organisms than the other two formulations. We see no amphibians in Table 6-12 which presents the acute toxicity analyses on aquatic organisms. Have any studies been done

(Continuation of Forest Service response)

10 Use of any method involves some risks. Mitigation measures aim to reduce risks of all methods as much as possible. As discussed in the EIS, fire has limitations as to appropriate use. Situations are foreseen where the appropriate tool is a herbicide, not fire. The major risks of certain herbicides are to human health, sensitive plants and animals, and water quality. Mitigation measures (on pages II-48 to II-54 of the Draft EIS) have reduced these risks to acceptable levels by screening herbicides for use, reducing application rates, requiring protective clothing and buffers, etc. For effects on water and aquatic life, see response to comments in Letter No. 70, Comment No. 3 and section IV.G.1 in the Final EIS.

11 Limited data is available for amphibians. Modeling was included to project effects. No reasonably foreseeable significant adverse effects were projected within this process. See also response to comment 7 of this letter.

to identify risks to amphibs from use of these herbicides? If not, why is the Forest Service recommending their use without adequate research to document affects?

- Hexasinone: the summary states that this herbicide is practically nontoxic to fish and slightly toxic to aquatic invertebrates. No toxicity studies, however, have been reported for amphibians. No chronic studies with aquatic organisms have been reported.

- Imazapyr: No studies have been reported with amphibians.

- Light fuel oil: No studies have been reported in the literature relative to amphibians.

- Limonene: No information is available on its toxicity to aquatic invertebrates or amphibians.

- Picloram: This herbicide is stated to be generally moderately to slightly toxic to aquatic invertebrates or amphibians.

- Sulfometuron Methyl: The toxicity of this product to amphibians has not been reported in the literature. No long-term studies of the effects of sulfometuron methyl on aquatic orgamisms have been reported.

- Tebuthiuron: No studies are available on amphibians.

- Triclopyr: No toxicity studies have been reported with amphibians.

As can be seen, there is a significant lack of data concerning the effects of various herbicides and additives on amphibians, including adequate testing on various life stages. Information about reptiles is also lacking, as is noted on page 8-3 of the Appendices.

11a Page 8-3 also states that, due to a reasonable correlation between avian and amphibian toxicity as indicated in an analysis of mallards vs bullfrogs, that available avian toxicity data were used as surrogates both for reptiles and amphibians. It is a little confusing to then read on page 8-4 that "Avian toxicity data are particularly rare for most of the herbicides."

Wildlife impacts are not necessarily limited to direct toxicity effects. Studies of the Eastern Indigo snake, Drymarchon corais couperi, in north Florida have demonstrated the elimination of essential overwintering habitat as a consequence of herbicide broadcast in association with forestry activities (Moler, from a study initiated in 1981).

J. L. Dobie, personal communication 8/30/88, advises that a factor of undetermined impact to the endangered Alabama red-bellied turtle, Pseudemys alabamensis, relates to an apparent reduction in the amount of aquatic vegetation in the marshes and bays utilized by the turtle in the lower part of the Mobile Bay System. This impact may have occurred due to aquatic weed control in the area using herbicide sprays.

(Continuation of Forest Service response)

11a While avian toxicity data are rare for most of the herbicides, the data base is relatively complete for the species/herbicide combinations for which evaluation has been done. Reptile/herbicide data are virtually unavailable, and amphibian/herbicide data are not complete for any herbicide/amphibian combination. Where bird and amphibian tests overlap (eg. mallard-bullfrog), results were similar enough to suggest analogy.

Although the Risk Assessment (appendix A) discussed only toxic effects to wildlife, effects of herbicides on wildlife habitat are discussed extensively in chapter IV. Furthermore, as discussed in appendix D, proper use of herbicides may improve habitat for Eastern Indigo snake.

Although a reduction in aquatic vegetation may affect Alabama red-bellied turtle habitat, use of aquatic herbicides is beyond the scope of this document and consequently was not evaluated.

Tables 8-17 through 8-33 of the Appendices present risk analyses for accidents for 17 herbicides. In considering the amphibian species used, Necturus maculosus (mudpuppy), we note that 14 of these indicated no data available on their effects on the species. We do not see how adequate evaluation can be made given this gap in the data.

12 We believe that the public's perception of unacceptable risk associated with the herbicide method is high. It is our feeling that the public's concern is justified, and that the above comments support our position. The use of herbicides involve too many unknowns, it is very costly and the inability to satisfy legally-mandated diversity requirements clearly demonstrate the inappropriateness of this method of vegetation management on national forests in the Coastal Plain/Piedmont.

13 Biological Method: The only biological method discussed is that of cattle grazing (range). We continue to be concerned with the effects of range on wildlife habitat, watershed and species diversity in sensitive areas. We are not convinced that adequate research has been done to document impacts, or that adequate monitoring occurs. We would support phasing out of cattle grazing on national forests.

14 Threatened and Endangered Species: Only three species were selected for analysis of potential impacts of Region 8 herbicide programs (8-24). These species are the red-cockaded woodpecker (Picoides borealis), smoky madtom (Noturus baileyi), and gopher tortoise (Gopherus polyphemus). Concerning the smoky madtom, a fish species with a very restricted range which does not include Florida, we would be concerned about aerial application and problems associated with drift. For gophers and RCWs, we would have the same concern on an expanded basis, as these two species occur over a number of national forests in Region 8. It would not be possible, in our opinion, to protect these species from exposure, particularly aerial and ground mechanical applications.

14a The gopher tortoise' habitat has historically been maintained by fire, either naturally-occurring or human-induced. We are not aware of any studies which document that herbicide use has no effect on the habitat, primarily the food source. We would be interested to learn of such work. We also do not believe that adequate research has been done on the effects of site prep on the tortoise in different habitat situations. Guidelines should be provided to forest technicians to ensure that neither of these methods is allowed to adversely impact this species.

Please refer to previous specific comments on the threatened Eastern indigo snake and endangered Alabama red-bellied turtle (we don't see this animal on the list on III-14; perhaps our records are not current).

15 We find the short discussions on page 8-24 (RCW, gopher tortoise, smoky madtom) to be inadequate insofar as presenting an acceptable risk assessment for the 16 animal species and 4 plant species which are federally listed according to Table III-5, page III-14. There are, in

12 See response to comment 7 of this letter. We believe that the EIS clearly demonstrates that the use of the herbicides evaluated in this document as recommended within a multi-tool vegetation management program is an environmentally sound alternative. This document discloses all projected effects and none pose reasonably foreseeable risks of causing adverse effects when proper mitigation is employed.

13 Due to the adverse effects and complex management of heavy grazing disclosed in chapter IV, biological methods were eliminated in alternative modified G in the Final EIS.

14 The risk assessment (appendix A) used 19 terrestrial vertebrates, 12 aquatic vertebrates, and 4 aquatic invertebrates to predict risk of toxic effects to wildlife. These species were chosen to represent a broad range of taxonomic groups, food habits, habitat, and geographic occurrence. Using this information and other available studies, risk to all threatened, endangered, proposed, or sensitive species is discussed in chapter IV and appendix D of the Draft and Final EIS. Endangered species are not used as surrogates for other endangered species in this analysis. The three chosen species were considered important to deal with in the overall analysis. Other endangered species would be analyzed on a site-specific basis.

The risk assessment addresses the potential effects of spraying in a red-cockaded woodpecker colony. 2,4-D and 2,4-DP present a significant potential for direct toxic effects when broadcast to foraging or nesting areas, but not when applied selectively. All treatments in T&E habitat must be selective, many of which do not involve spraying at all. Selective herbicide use is recognized by the U. S. Fish and Wildlife Service as a valid tool for improving the habitat of the red-cockaded woodpecker by removing encroaching midstory and understory hardwoods. Concurrence by the FWS must be obtained before any habitat improvement project that "may affect" (including beneficial effects) any threatened or endangered species may commence.

14a We are also not aware of any research that documents that herbicide has no effect on gopher tortoise habitat. If herbicides are selectively used to remove encroaching woody overstory, however, herbaceous plant growth will be stimulated. Thinning or removal of scrub oak has been identified as beneficial to gopher tortoise (Landers 1980). A Forest Service habitat handbook chapter is currently in draft form. Consultation with the U. S. Fish and Wildlife Service on the chapter is underway.

15 Please refer to the revised version of appendix D in the Final EIS for this information. See also response to comment 14 of this letter.

addition, no risk assessments presented for the 169 sensitive animal and plant species which occur on the nfs in the Coastal Plain/Piedmont (Table III-7, p. III-15). Terrestial orchids, for example, are extremely sensitive and the more intensive methods of vegetation management would be very destructive of these species.

16 We do not see a clear statement of the criteria used to evaluate the effects of the various methods of vegetation management on listed and sensitive species. This is very important in order to provide for meaningful review, and for forest technicians in the prescription planning process.

17 We note, per Table III-7, that no effect on the gopher frog, Rana areolata, from any method of vegetation management is perceived. We question this conclusion as this species uses both sandhills and ephemeral wetlands during its life cycle, and may be affected by both herbicide and mechanical methods.

18 Page 2-13 advises that mitigation measures, such as not spraying in sensitive areas, notifying the public, posting notice signs and conducting water monitoring are usually specified in site-specific vegetation management plans (environmental assessments). Can the Service demonstrate that adequate inventories of sensitive species have been done on the nfs? We are aware, for example, that much remains to be done concerning the documentaion of rare botannicals on Florida's forests. We suspect other forests in the Region also lack adequate information in this area.

19 The paper entitled "A Biological Evaluation of the Effects of the Preferred Alternative on Threatened, Endangered, Proposed and Sensitive Species," James D. Fenwood, USFS March 1988 presents very general statements about potential adverse effects and mitigation measures concerning listed and sensitive species. The criteria for evaluating these effects is not specific and may not provide adequate direction at the field level where much of the evaluation work is done. D-5 of this paper states that, in most cases, properly applied prescribed fire is beneficial or has no effect on the listed species. D-7 notes the benefits of prescribed fire on 3 of the 4 listed plant species, and states that all of the herbicides considered for use have the potential to adversely affect any of the listed plant species.

We therefore find it difficult, in light of the above, to understand the preparer's conclusion that actions proposed in the preferred alternative are not likely to adversely affect any threatened, endangered or proposed species, or that the same mitigation measures designed to protect the listed species will also afford adequate protection to the 169 sensitive species.

The paper on the "Effect of Herbicides on Soil Productivity and Water Quality" by Daniel G. Neary, SE Forest Experiment Station, Gainesville, Florida and Jerry L. Michael, Southern Forest Experiment Station, Auburn, Alabama (Appendix C) states that the "driving force behind

(Continuation of Forest Service response)

16 Vegetation methods were evaluated based on their potential to adversely affect the habitat of the listed species or to have a potential risk of direct toxic effects on the listed species. The tables presented in appendix D (the revised version includes a table of effects on sensitive species as well) are only general guides. Site-specific biological evaluations will determine the likelihood of a particular project to adversely affect a species. In addition, figure D-1 of the Final EIS traces the process required to insure adequate assessment of potential harmful effects to these species.

17 This has been revised to show possible adverse effect. See appendix H in the Final EIS.

18 Much remains to be done, but as specified in general mitigation measures in chapter II, adequate inventories must be obtained when a proposed project may affect a proposed, endangered, threatened, or sensitive species. Regardless of reiteration in site-specific analyses, these mitigations are required by the preferred alternative.

19 See response to Comment No. 16 of this letter.

increased herbicide use has been the need to improve growth on a diminishing forest land base at a lower initial investment cost."

20 Does the Service concur with this statement? If so, we would be very concerned with what seems to be an emphasis on managed outputs, i.e., timber production, at the expense of other forest resources, such as biodiversity. The paper also notes that herbicides eventually 'disappear.' This disappearance occurs through transport and degradation. Both processes hold pitfalls which, we believe, emphasize the inappropriateness of herbicide use on the national forests.

20a Examples are drift and surface runoff, and the degree to which herbicides persist in the environment (toxicity in the soil). The discussion on C-10 refers to the lack of knowledge about the complex interactions between soil organisms and herbicides.

The water quality section in this paper notes that, generally, the risk of water pollution is less with ground application than aerially.

21 Table II-8, page II-64 states that the preferred alternative G favors early-mid successional species. We are concerned that proper consideration has not been given to late successional species, such as the endangered Florida black bear and red-cockaded woodpecker, whose habitats are declining, particularly in rapidly-urbanizing Florida. The future for late successional species rests, we believe, on public lands, especially on the large tracts encompassed within the national forests.

22 Page 2-1, Section 2 identifies Forest Service program descriptions or purposes of vegetation management. These include (1) sustain and improve the ability of lands to produce timber, livestock forage and wildlife habitat; (2) ensure public safety on roads and other rights-of-way; (3) protect facilities and capital improvements and (4) reduce fuel loads to protect resources from wildfires. Biodiversity maintenance should be added to this list (see NFMA, our comments, p. 2).

Page I-6 discussed categories of public comments which are not addressed in the DEIS. One of these, landscape-wide diversity, is very important in meeting NFMA biodiversity requirements.

Again, we appreciate the opportunity to participate in reviewing the Vegetation Management DEIS. Our work has identified no alternative which we feel is, in itself, appropriate for application to our national forests, and which will satisfy legal mandates on these lands. We therefore recommend that an alternative (I) be developed which will provide for ecologically sound management on the forests, and which utilizes prescribed fire as the primary tool for vegetation management. We look forward to the opportunity to review such an alternative.

Sincerely,

Judith C. Hancock
Forestry/Wildlife
Sierra Club - Florida Chapter

(Continuation of Forest Service response)

20 The statement does not reflect a Forest Service position, but puts into historical perspective one major reason for the general onset of herbicide use in forestry. This EIS does not emphasize the production of any particular resource or output. Output levels of all sorts are fairly precisely defined by Forest Land and Resource Management Plans. Table II-9 displays some gross predictions of effects on outputs assuming one of the eight alternatives analyzed is implemented. See also response to comments in Letter No. 14, Comment No. 1; and Letter No. 173, Comment No. 3.

20a See response to comments in Letter No. 270, Comment No. 10; and Letter No. 70, Comment No. 3.

21 The amount of late-successional vegetation available to a species is largely determined by timber harvest and rotation age decisions which are made at the forest planning level and these decisions are beyond the scope of this document.

22 In response to this comment, the text in the Final EIS has been changed to read: "These plans provide for access to national forests, livestock grazing, timber management, visual quality, water quality, and vegetation, wildlife and fish diversity."

9/13/88

Steve - in rereading my comments, for Florida Sierra, 8/26/88, on ~~the~~ Vegetation EIS draft, I noted several areas which should be corrected:

- P. 3, 2nd para. from bottom, add "of pine species" after "reproductive success."

- P. 10, the Table II-8 discussion, substitute "threatened" for "endangered" Florida black bear & I hope my careless error is not a premonition of a worse future for black bear; alas, I am afraid that it is ; and add "endangered" before "red-cockaded woodpecker, ...

Also, Melynda Reid forwarded me a copy of her comments on the DEIS - I absolutely concur with her statements & observations. Melynda has an exceptional intellect as well as a deep sense of fairness & strong ethic in relation to the environment - she is not overestimating the seriousness of our collective concerns.

I do hope that we may look forward to a document which will make us much happier.

Thanks for your work & effort.

Judy Hancock
Florida Sierra Club
PO B 2436
Lake City Fl 32056

904/752-5886

321a

UNITED STATES GOVERNMENT

memorandum

DATE: December 19, 1988

REPLY TO ATTN OF: Field Supervisor, Raleigh Field Office, Fish and Wildlife Enhancement, Raleigh, North Carolina

SUBJECT: Review of Forest Service Changes to the Environmental Impact Statement, Vegetation Management in the Coastal Plain/Piedmont, USDA - Forest Service, Southern Region

TO: Assistant Regional Director, USFWS, Fish and Wildlife Enhancement, Atlanta, Georgia (Attention: John Baumeister) (AWE)

We have reviewed the Forest Service's November 2, 1988 letter to Mr. James Lee, Office of Environmental Project Review, outlining recent changes made to the subject Statement as a result of the Fish and Wildife Service's August 26, 1988 letter and a September 21, 1988 telephone conference call between the Forest Service in Atlanta, Georgia and the Service's biologists in the Asheville and Raleigh Field Offices.

Based on our review, we believe the statement adequately addresses the Service's August 26, 1988 comments except for deficiencies in the following areas:

1. Comment No. 9 expressed concern that the Statement may mislead Forest Service field personnel to believe that use of "mitigative measures" would preclude the need conduct a biological evaluation and determination of potential effects on species that are Federally-listed or proposed for Federal listing. During our September 21, 1988 telephone discussions with the Forest Service on this issue, we were led to believe that changes would be made to the Statement to reiterate that mitigative measures do not necessarily remove the need to consult under Section 7 of the Endangered Species Act of 1973, as amended (Act). Such changes were not outlined in the Forest Service's November 2, 1988 letter.

2. Comment No. 16 recommends that Table III-6 be up-dated to include all Federally-listed species which occur on Forest Service lands within the Statement's area of concern. Specifically, we recommended that the endangered plant species, rough-leaved loosestrife (Lysimachia asperulaefolia), be added to the list of species in Table III-6. The Forest Service's November 2, 1988 outline of changes did not include this recommended change.

Because of the general nature of the subject Statement, we do not believe there is sufficient information on specific projects and/or potential impacts with which to conduct consultation, as defined under

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114

☆ U.S.G.P.O. 1988 - 201-760/60279

Response to Comments in Letter No. 321a

From: James Lee

Comment No.	Response
1	As stated on page II-45 and pages D-5 and D-6 (appendix D) of the Final EIS, biological evaluations will be done as part of the site-specific environmental analysis. Projects must have site-specific analysis in compliance with the National Environmental Policy Act (NEPA). This is a requirement, not an option, for projects. Additional mitigation measures given in chapter II of the EIS do not preclude the need for biological evaluations.
2	This species has been added to the list of endangered plant species, see appendix E, table E-2 of the Final EIS.

Section 7 of the Act. Site-specific evaluation, as outlined in the subject Statement, will determine the need for Section 7 consultation.

In summary, provided the subject Statement is revised to address and include the above-recommended changes, we believe that it will adequately address our concerns for federally-listed and proposed species. We appreciate the opportunity to review the Statement and the Forest Service's attention given to our August 26, 1988 letter.

Sincerely,

Mike Gwill

321

United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW
RICHARD B. RUSSELL FEDERAL BUILDING, SUITE 1320
75 SPRING STREET, S.W.
ATLANTA, GEORGIA 30303

AUG 26 1988

ER-88/449

Mr. John E. Alcock, Regional Forester
U.S. Department of Agriculture
Forest Service
1720 Peachtree Road, NW.
Atlanta, Georgia 30367

Dear Mr. Alcock:

The Department of the Interior has reviewed the Draft Environmental Statement for the Vegetation Management in the Coastal Plain/Piedmont and offers the following comments and recommendations for your consideration.

1 The document should analyze the potential for impacts and the risks involved in the use of herbicides in karst areas, especially where limesinks have created areas of internal drainage. The analysis should also address where permeable sand aquifers overlie karst in which direct conduits with little filtering potential can exist. In such conduits there may be little opportunity for attenuation by adsorption and the movement of ground water can be relatively rapid. The significance of depth to water and thickness of the soil and unconsolidated material overlying bedrock should also be evaluated in assessing the potential impacts of herbicides on ground water.

2 Big Thicket National Preserve is in the vicinity of several national forests in Texas. When vegetation management projects are proposed in areas near park units, we recommend that coordination be initiated with the park. Please contact Superintendent, Big Thicket National Preserve, 3785 Milam, Beaumont, Texas 77701, for additional information, if needed.

3 The document generally outlines the potential hazards and risks to wildlife associated with the various alternatives. However, the endangered species sections are outdated and have some serious inadequacies. Therefore, we are unable to concur with the determination that the preferred alternative is not likely to adversely affect any threatened, endangered or proposed species at this time.

4 Alternatives that favor broadleaf trees, shrubs and herbaceous plants, important to wildlife needs to be developed. Provisions for wildlife, such as retention of snags larger than 8 inch dbh, need to be described. Protection of wetlands from erosion caused by use of mechanical equipment, fire or removal of ground cover, drift of aerial herbicide spray, runoff of herbicides or grazing in riparian areas needs to also be addressed in all alternatives.

Response to Comments in Letter No. 321

From: James Lee

Comment No.	Response
1	Herbicide entry to ground water was assessed using 2 methods, summarized on pages IV-87-88 of the Draft EIS: 1. Appendix A (pages 4-24-44) modeled potential leaching of herbicides applied at maximum rates to the soil surface to a sand aquifer at a 3-foot depth. This is the most sensitive set of conditions that could be modeled. Concentrations in this shallow ground water were never predicted to reach even 0.010 ppm. 2. Appendix C (pages 17-19) gives results of field studies of several herbicides in which concentrations in shallow ground water directly under the treated area never reach 0.025 ppm. Karst features in national forests of the Coastal Plain are covered by a mantle of soil and sediment at least 3 feet thick. Some dispersion and adsorption of herbicides will thus occur before the internal drainage network is reached, and dilution by the concentrated ground water should reduce herbicide concentrations to undetectable levels almost immediately. Pages IV-87-88 of the Draft EIS have been revised for the Final EIS to address this issue.
2	We agree. Big Thicket and NFs in Texas should pursue coordination at local level.
3	Corrections, clarifications, and additions have been discussed with the Fish and Wildlife Service and are detailed in this response.
4	These provisions can be found in chapter II, section E, "Management Requirements and Mitigation Measures." Movement of herbicides and sediment to streams and lakes is addressed in the Draft EIS, section IV-G (Water). Protection is provided by mitigation measures on pages II-44, II-47, II-53, and II-54 of the Draft EIS. These sections are being revised in the Final EIS to directly address wetlands concerns.

5 Timing and management of prescribed burns needs to be described. Prescribed fire can be a good plant and wildlife management tool depending on time of year, intensity and frequency fire is used,

6 The generic nature of the document offers no specifics as to how much of each type of management would be applied under which conditions in North Carolina's National Forests. Thus our comments are necessarily of a general nature and preclude identification of the most environmentally preferred alternative at this time. Fire is a natural component of these ecosystems and usually would be more preferable than use of herbicides from the standpoint of wildlife management. It is stated on page II-35 that: "Projects will have site-specific analysis, in accordance with the National Environmental Policy Act (NEPA)." We request the opportunity to review and comment on the site-specific analyses prior to implementation of any projects planned for North Carolina's National Forests,

Specific Comments

7 Page II-8. We are pleased that the document states that selective treatments will be favored over broadcast treatments,

8 Page II-9. What is the rationale behind the different treatment frequencies for varying management activities? For example, why is endangered and threatened species habitat treated more often than many other areas? Could this lead to cumulative impacts on some species? If so, these should be addressed in Chapter IV,

9 Page II-35. The document uses the term "mitigative measures" here and in numerous places subsequently to refer to minimum measures designed to ", , , lessen adverse impacts or to enhance beneficial effects. , , ," The Department is concerned that it might be presumed that use of these "mitigative measures" could be taken to imply that there is no further need for a biological evaluation and determination of potential effects on species that are federally-listed or proposed for Federal listing. Therefore, we recommend the use of an alternate term and also recommend that this term be defined in the glossary. However, to avoid confusion here, we will use the term mitigation as defined on page II-35 when referring to specific statements in the Draft Environmental Impact Statement,

10 Page II-36. The document covers many issues from many angles and it is somewhat confusing to follow. For example, information concerning federally-listed endangered, threatened or proposed species is included here, in Chapters III and IV, and in Appendices A and D. To aid the reader, we recommend a flow chart be included that outlines the step-by-step procedure for planning, evaluating and implementing a vegetation management project in areas where species that are federally-listed or proposed for Federal listing may occur. This chart should identify decision points and who should be contacted about species issues.

(Continuation of Forest Service response)

5 The description requested is contained in chapter II, pages II-11 to II-14, II-43 to II-46, and pages IV-30 to IV-37 of the Draft EIS.

6 True. This is a programmatic document. See the applicable Forest Land and Resource Management Plan for the National Forests of North Carolina for specific forest management direction. Requests for review of site-specific environmental analysis should be directed to the appropriate national forest.

7 Comment noted.

8 See page IV-70 of the Draft EIS for a discussion of how repeated treatments may be needed to maintain T&E species habitat.

9 The term "mitigation" as defined on page II-35 is tied to the concept of mitigation in NEPA, the CEQ guidelines, NFMA, and forest plans. Item (1) on II-35 and (2) on II-36 in the Draft EIS clearly state that these measures alone are not sufficient. Each forest may be more restrictive, but not less (page II-35 of the Draft EIS). A definition has been added to the glossary.

10 A flow chart is added to appendix D which helps understand project planning requirements.

11 Page II-37. The second paragraph on this page should be rewritten as follows: "If it is determined that the project may adversely affect federally-listed endangered or threatened species, consultation will be initiated with the U.S. Fish and Wildlife Service. If, during informal consultation, it is determined that the project is not likely to adversely affect listed species and the U.S. Fish and Wildlife Service concurs in writing with that determination, consultation is terminated. However, if it is determined that the project is likely to adversely affect listed species, formal consultation will be initiated."

12 Page II-44. "Mitigation" measures for endangered and threatened species should be included for prescribed fire management. Page D-5 states that improperly planned fires may destroy nest trees for bald eagles and red-cockaded woodpecker cavity trees. This should also be shown as a potential adverse effect for red-cockaded woodpeckers in Table D-1. Likewise, the season when the burn is conducted may affect federally listed species. The site-specific biological evaluation should address this. Again, the "mitigation measures" do not necessarily avoid a "may affect" situation and the need for consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973, as amended.

13 Page II-49: Appendix A: page 8-24; Appendix D: page D-5 and Table D-2. There are apparent contradictions among these sections. Appendix A, page 8-24 states: "Two herbicides that appear to present a significant potential for direct toxic effects when applied to the [red-cockaded] woodpecker's foraging or nesting areas are 2,4-D and 2,4-DP." Appendix D, page D-5, indicates potential for significant risk only to gray and Indiana bats and Florida scrub jays and Table D-2 indicates that none of the evaluated chemicals pose significant risk to red-cockaded woodpeckers when broadcast at a normal rate in the absence of "mitigation" measures. These inconsistent statements should be corrected in a revised document. In light of the statement in Appendix A, we recommend that Appendix D be appropriately modified and that page II-49 should offer minimum measures designed to avoid adverse impacts to red-cockaded woodpeckers.

14 Pages II-49 versus page D-4. Table D-1 indicates potential adverse habitat effects from the use of herbicides in the absence of mitigative measures for all endangered, threatened or proposed animal species evaluated except the gopher tortoise. Yet, the mitigative measures for herbicide use proposed on pages II-49 and 50 are only to protect these species from direct toxicity effects. We recommend that mitigative measures be included to protect these species from adverse effects due to the use of herbicides.

15 Page II-73. It is stated that most of the 7,000 acres proposed for aerial application of herbicides would be for rights-of-way maintenance. However, these early successional habitats provide some of the only habitats for several federally-listed or candidate plant species in the Coastal Plain of North Carolina. While these species may benefit from mowing or management

11 Wording changed as requested in both chapter II and appendix D.

12 See chapter II for mitigation measures concerning burning. In the Final EIS the following wording has been added to mitigation measure number 13 (page II-45 of the Draft EIS).

> "Burns are planned and executed to avoid damage to habitat of any threatened, endangered, or sensitive species (such as destruction of bald eagle nest trees)."

We agree that mitigation measures do not necessarily avoid a "may affect." Site-specific analysis will include seasonal consideration. Table D-1 has been corrected to show the potential adverse effects on red-cockaded woodpeckers.

13 Appendix A, page 8-24 in the Draft has been revised for the Final EIS to read,"... present a significant potential for direct toxic effects when applied at greater than typical rates..." which correctly reflects data presented in tables 8-1 and 8-2. When applied at typical rates, as required by mitigation measure number 4 on page II-48 of the Draft EIS, the exposure of red-cockaded woodpeckers is not predicted to exceed 1/10 LD_{50} for any chemical and, therefore, does not present a significant risk.

14 Corrections have been made to table D-1 to show potential adverse effects on habitat.

15 As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS. In modified G, total aerial spray application of herbicide is estimated at 2,500 ac of which 60% is for site preparation and 40% for ROW. This is a 15-20% reduction from the Draft preferred alternative G. As specified on page II-50 of the Draft EIS, herbicides will not be applied when endangered plant species occur. Site-specific biological evaluation determines the need for consultation.

with prescribed fire, they may be adversely affected by herbicides. We recommend against the use of herbicides for vegetation management of rights-of-way wherever such species might occur. If such use of herbicides is planned for areas with federally-listed species, prior consultation with the U.S. Fish and Wildlife Service is required. If, during informal consultation, it is determined that the proposed action is likely to adversely affected listed species, formal consultation is required.

16 Page III-14. The table of federally-listed endangered and threatened plant and animal species should be updated. Table III-5 should show that the red-cockaded woodpecker occurs in North Carolina's National Forests. the Federal status of the American alligator has been reclassified to Threatened due to similarity of appearance throughout the southeastern United States, resulting in the removal of Federal agency responsibilities under Section 7 of the Endangered Species Act for this species. The rough-leaved loosestrife (Lysimachia asperulaefolia) should be added to Table III-6, this endangered perennial herb is currently known only from the Coastal Plain and Sandhills of North Carolina and could be adversely affected by vegetation management without protective measures although carefully planned prescribed burns may benefit the species.

17 Page III-15 through III-18. There is no definition of "sensitive species" provided. One should be included in the text and in the glossary in Chapter VII. Table III-7 and III-8, which list sensitive animal and plant species on Coastal Plain/Piedmont national forests, should include Category 1 and 2 Candidate species. Enclosed is a list of those Candidate species which may occur in North Carolina's National Forests. Finally, we do not agree with the unexplained finding that all amphibians are unaffected by vegetation management activities. The moist skin of the terrestrial phases of amphibians absorbs fluids and may be quite susceptible to herbicides. The lack of amphibian data cited in the Wildlife Risk Analysis in Appendix A precludes the conclusion that there would be no effect on these species. Note that there are at least 2 Candidate amphibians on the list of species which may occur in National Forests in North Carolina.

18 Page IV-13. The document states that Forest Service policy permits use of List 2 formulations only when no other formulations meet project objectives. We thus question why kerosene, a List 2 inert ingredient, is being evaluated.

19 Page IV-13. Both kerosene and diesel oil are potentially toxic when ingested by birds. In addition, diesel oil in very small quantities is known to be lethal to bird embryos. However, some herbicides are most effective when applied during the growing season, a time when birds are nesting and potentially more vulnerable. Therefore, we request the following information: (1) identification of each herbicide as to season of optimal use (i.e., early spring vs. autumn), and (2) identification of herbicide formulation utilizing each of the three identified inert ingredients.

20 Page D-6, Table D-2. It is unclear why two aquatic species, the shortnose sturgeon and the Louisiana pearl mussel, are at significant risk from accidental spills but the risk from accidental spills is considered not

16 These tables have been updated. See appendix E of the Final EIS.

17 "Sensitive" species is now defined in the glossary as follows:

> Those plant and animal species identified by the Regional Forester for which population viability is a concern, as evidenced by: significant current or predicted downward trends in population numbers or density; or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

The list of sensitive species has been updated since publication of the draft document.

We do not state that all amphibians are unaffected by vegetation management. The may affect column has been deleted from tables III-5 through III-8. See appendix E of the Final EIS. However, there are no Federally listed amphibians occurring on national forests in the Coastal Plain/Piedmont.

Effects on woodhouse toad and mudpuppy were analysed in the risk assessment. Potential adverse effects on sensitive amphibian species are discussed in the final version of appendix D.

18 It was necessary to evaluate effects before we set restrictions on use. Also, to meet objectives, sometimes List 2 chemicals will be used. Therefore, they must be analyzed.

19 Although, as shown in table D-2, the risk assessment did not identify a risk to adults or young of any species from normal use of these additives, there is evidence that diesel oil and kerosene can be lethal to bird embryos.

Kerosene and deisel oil are not normally part of a herbicide formulation. They are generally used as additives to improve bark penetration. They are not normally used in broadcast spray operations. However, Garlon 4 (triclopyr) contains diesel oil and Estron 99 (2,4-D) contains kerosene. Both are registered for broadcast application.

A mitigation measure which prohibits broadcast use of diesel, kerosene, or formulations containing diesel or kerosene in the habitat (within 300 feet for aerial application and 60 feet for ground application) of any threatened, endangered, proposed, or sensitive bird species, during nesting season, has been added to chapter II in the Final EIS.

20 This has been corrected in the Final EIS, in table D-1, to show possibility of risk to these species.

applicable for two other aquatic species, the West Indian manatee and the American alligator. The discrepancy between this table and the risk assessment for red-cockaded woodpeckers should be corrected,

21 General. We find no mention anywhere in the document about the potential for adverse or beneficial effects from the various vegetation management alternatives on Research Natural Areas, North Carolina's Registered Natural Heritage Areas and other significant habitat areas. We recommend that the final document address these issues and propose mitigative measures to prevent adverse effects to these areas.

22 We also recommend that throughout the discussions of the various management alternatives, a statement be included to reiterate the need for consultation with the U.S. Fish and Wildlife Service as required by the Endangered Species Act wherever the site-specific analysis indicates that a vegetation management project may affect federally-listed species and of the need to confer with the Fish and Wildlife Service whenever a project may jeopardize the continued existence of a proposed species.

Summary. In summary, the Department believes that the document generally outlines the potential risks to wildlife from the various vegetation management methods. However, there are a number of weaknesses in the sections concerning species which are federally-listed, proposed, or proposed for Federal listing. Therefore, the Fish and Wildlife Service cannot concur with the finding that the Forest Service's preferred alternative is not likely to adversely affect any threatened, endangered or proposed species. As a Federal agency, the Forest Service has responsibilities under the Endangered Species Act to formally consult with the Fish and Wildlife Service if it finds that any proposed vegetation management projects are likely to adversely affect listed species or critical habitats,

In addition, the lack of specific information as to what types of vegetation management are proposed for which areas in North Carolina's national forests prevents the identification of the most environmentally preferred alternative at this time. The document needs an analysis of potential impacts and risks involved with the use of herbicides in karst areas, especially where limesinks have created areas of internal damage. We request the opportunity to review the site-specific analysis for any projects planned for North Carolina's national forests.

Sincerely,

James H. Lee
Regional Environmental Officer

Enclosure

(Continuation of Forest Service response)

21 This document addresses management of general forest areas described in forest plans. Vegetation management in research natural areas is not covered by the EIS. When vegetation management has potential for affecting an adjacent RNA, these effects are covered by site-specific analysis.

22 This requirement is spelled out in detail on page II-37 and in appendix D in the Draft EIS and in the flow chart in appendix D of the Final EIS.

CATEGORY 1 AND 2 CANDIDATE SPECIES AND SPECIES PROPOSED FOR LISTING POTENTIALLY FOUND IN NORTH CAROLINA'S NATIONAL FORESTS

Common Name	Scientific Name	Category
Bachman's sparrow	Aimophila aestivalis	2
Carolina gopher frog	Rana areolata capito	2
Pine barrens treefrog	Hyla andersonii	2
Carolina madtom	Noturus furiosus	2
Loose watermilfoil	Myriophyllum laxum	2
Sensitive joint-vetch	Aeschynomene virginica	2
Wagner's spleenwort	Asplenium heteroresiliens	2
Riverbank sand grass	Calamovilfa brevipilis	2
Chapman's sedge	Carex chapmanii	2
Godfrey's sandwort	Minuartia godfreyi	2
Spring-flowering goldenrod	Solidago verna	2
Heart-leaved plantain	Plantago cordata	2
Wireleaf dropseed	Sporobolus teretifolius	2
Carolina grass-of-parnassus	Parnassia caroliniana	2
Cooley's meadowrue	Thalictrum cooleyi	PE
Smooth coneflower	Echinacea laevigata	2

PE: Species proposed for Federal listing as endangered,

Category 1: Species for which the Service currently has on file substantial information on biological vulnerability and threat(s) to support appropriateness of proposing to list them as endangered or threatened species, Additional data currently are being gathered and development and publication of proposed rules on these species are anticipated, but because of the large number of such taxa, publication could take some time,

Category 2: Species for which current data indicate that proposing to list them as endangered or threatened may be appropriate but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules,

329

6215B Westcott
Houston, Texas 77007
August 20, 1988

USDA Forest Service, Southern Region
1720 Peachtree Road NW
Atlanta, Georgia 30367

Dear Sir:

I am writing to express my opinion concerning the proposed Vegetation Management Plan in the coastal plains. Although I would prefer that no action be taken by the U.S. Forest Service in our forests, I must assume that the environmental experts are correct in their assessment that some management is necessary.
1 I therefore choose Alternative C which specifies that methods which cause limited site disturbance be employed. I am opposed to the use of herbicides because of the detrimental effects on the environment, but I do support limited, prescribed fires when they are critically needed.

Based on Man's record of overly intense, and therefore destructive, interference with the eco-system, I hope that your ultimate decision will be one of limited management. Thank you for your attention.

Yours truly,

Eleanor Morse

Eleanor Morse

Response to Comments in Letter No. 329

From: Eleanor Morse

Comment No.	Response
1	The commenter's preference for alternative C was included in the content analysis of all comments received. National forests are mandated to produce a variety of goods and services. In order to fulfill this mandate, some manipulation of natural processes is necessary. As the EIS shows, the use of herbicides is the least damaging tool available to us in some circumstances. Used carefully, herbicides, in some circumstances, minimize the interference necessary in forested areas while insuring a full range of outputs. Scientific evidence presented in the Risk Assessment and the EIS supports the position that herbicides can be used as an effective, relatively risk-free tool in the forest environment. Mitigation measures for the use of herbicides (pages II-48-54 of the Draft EIS) including reduced application rates, emphasis on selective rather than broadcast use, buffering sensitive areas, etc. are all used to improve the relative degree of safety for workers, the public and wildlife, and to minimize adverse effects to non-target plants and the environment. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

330

RESPONSE FORM

We're providing this form to make it convenient for you to respond. You need not use this form though.

However you decide to respond, please help us by making specific and meaningful comments.
Have we done an adequate scientific analysis? Do the Alternatives respond to your concerns?

Comments on Scientific Analysis: Since I am not an expert, I fell more me comfortable commetning on the presentation than the content: the presentation was EXCELLENT! IV-5,6,7: the definitions of w exposures are very good and should serve as a model for EIS's.
Generally, the data was well presented and understandable.

1 Why?
Peesented in clear and concise terms, not bureaucratese. The Whole DEIS was well-written.

Comments on Alternatives: Who selected the preferred alternative? I would like to see more justification. What weights were given to the various points of comparison?

2 MY CHOICE IS ALTERNATIVE C.

Why? If anything I would reduce and limit the use of herbicides...they are not specifice and magagable enough to suit me. I advocate the least impact possible and Alternative C seems to have the best balance, for my maxx my money , between necessary management and unnecessary interference with nature.

Furhher, I encourage the use of manai manual methods wherever possible. One, Otherthey put more Texans to work. Two, they offer less opportunity for "Oops, I'm sorry," being more selective and controllable.

Why?
Let's not use diesel at all. It's too toxic and stays in the soils too long.

I apologize for the typewriter. I'm at home, the computer is at work.

(use additional sheets as necessary)

To return this comment sheet, fold and staple with USDA Forest Service address outside and drop in the mail (no postage necessary).

Vice President,
Environmental Affairs,
Houston Audubon Society

Jane L. Scheidler
Name: First MI Last
2286 Shadowdale
Street
Houston, Tx 77043
City State Zip Code

Response to Comments in Letter No. 330

From: Jane L. Scheidler

Comment No.	Response
1	The interdisciplinary team views its writing assignment as equal in importance to the analysis. Good communications is a top priority. While many reviewers commented that this very complex technical subject has been handled very well, some may still find it overly complex. The summaries on pages iii through xvi of the Draft EIS attempt to address this problem.
2	The commenter's preference for alternative C was included in the content analysis of all comments received. Basically, criteria used to help select the preferred alternative are a combination of the guidelines on page II-1 and the environmental effects compared in table II-8. The Record of Decision that accompanies the Final EIS will contain the complete rationale for the selection. Alternative C does cause favorable impacts to several environmental elements, but it also produces some effects (such as falling short of some goals of Forest Land and Resource Management Plans) considered unfavorable by others. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

334

ENVIRONMENTAL DEFENSE FUND

North Carolina Environmental Defense Fund
128 East Hargett Street
Raleigh, NC 27601
(919) 821-7793

August 31, 1988

NCEDF Trustees
Mimi Cecil
Arthur W. Cooper
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Todd L. Miller
Hugh M. Morton
Marion A. Nichol

Mr. Steve McCorquodale
Team Leader
Vegetation Management EIS Team
USDA Forest Service
1720 Peachtree Rd., NW
Atlanta, GA 30367

Dear Mr. McCorquodale:

Please enter these comments into the record for the draft environmental impact statement entitled, "Vegetation Management in the Coastal Plain/Piedmont." Thank you for your willingness to accept these comments several days after the published deadline for the receipt of comments.

The US Forest Service is to be commended for the extensive amount of technical analysis conducted in support of this EIS. This document represents a serious attempt to evaluate the environmental effects of forest management strategies. Congratulations on the thorough involvement of the public into the planning process for our national forests.

1

The process notwithstanding, we have severe reservations about the proposed "preferred alternative," which would result in the inappropriate expansion of the use of herbicides in and near extremely sensitive threatened community types, and near sensitive receiving streams. This objection is especially strong for the use of aerial application of herbicides where practical and inexpensive alternatives exist.

We do, however, strongly support your efforts to use prescribed fire to correct past abuses of natural systems caused by the artificial prevention of fires. As you know, great harm to many fire-adapted plant communities resulted from the great increases in recurrence interval between fires which resulted from absolute fire control. Direct habitat destruction related to silviculture and agriculture has combined with fire-prevention to quite literally decimate our natural heritage. Our best guess for North Carolina is that way less than one percent of coastal areas have never been cut, and less than five percent of the Piedmont has never been cut.

Any active management action which threatens either those virginal areas, or the extremely limited relictual habitats where fire-adapted plants have become reestablished is

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Response to Comments in Letter No. 334

From: Douglas Rader

Comment No.	Response
1	We believe that, even with an expanded herbicide program that includes some aerial application, mitigation measures in chapter II, pages II-48 to II-54 of the Draft EIS will reduce risks to non-target plants, animals, and water to minimal levels except in rare cases. See response to comments in Letter No. 70, Comment No. 3, Letter No. 97, Comment No. 2, and Letter No. 312, Comment No. 7. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

2 clearly inappropriate. Increased use of herbicides falls squarely into that category, because of their unselective nature among herbaceous vascular plants. Prescribed fire, on the other hand, can in some measure mitigate for past management errors and should be actively supported.

Specific comments follow:

1. Range of alternatives

3 We find the range of alternatives evaluated to be extremely confusing, due to the seemingly arbitrary mixes of vegetation management actions chosen. It is not clear by what criteria the list of alternatives were assembled, nor what other alternatives might be tenable. For example, Alternative E seems a good bit more attractive than G for a number of reasons, yet the addition of 1,500 acres of biological control seems random. Since an almost infinite array of possible combinations exist, there are undoubtedly other combinations of alternatives with reduced pesticide use which would perform better overall than G. One strategy to overcome this objection would be to evaluate 100% options (all burning, all pesticide, etc.) in terms of performance by a set of specified criteria, and then to clearly demonstrate the reasons for specific departures from that technique. Given the evidence presented, I would argue for a 100% burning alternative, except where you can demonstrate specific, overwhelming objections, on a case-by-case basis.

In addition, the absence of a true integrated pest management alternative demonstrates the incomplete nature of this document. The parallel document for the Pacific Northwest clearly evaluates such an alternative, lists criteria by which all alternatives were evaluated, and makes a conclusion based on those criteria. I recommend a similar course here.

2. Performance guarantees and enforcement

4 The document explicitly states that the numbers used for the evaluations are based on guesses about how the various techniques would really be used by forest managers, according to a set of application policies loosely called "mitigation measures." I see no evidence that any specific limitation exists that would preclude the estimates from being grossly in error.
Once the palate is fully furnished with aerial spraying and all other alternatives, a forester may greatly increase his use of pesticides. You have stated that the forest-by-forest management plans should protect against this problem, and that individual decisions will be based on individual environmental analyses "tiered" to this EIS, yet that mechanism will not provide for public input nor limit the actual use of pesticides or other less acceptable methods of vegetation management. Actual implementation of this broad-brushed plan could closely resemble Alternative H. The final EIS must clearly delineate the specific conditions under which each type of vegetation management could be undertaken, and how the decision process would occur in each forest.

2. More than three-fourths of the projected increase in herbicide use in alternative G is in maintenance of roadsides and utility lines. All other herbicide treatments are 70-100 percent selective, so the risk to the plant communities you mention is greatly reduced in light of the mitigation measures in chapter II, pages II-48 to II-54 of the Draft EIS. The Final EIS contains tables in chapter II, part B, which clearly define the amounts of selective and non-selective herbicide treatments for each activity within an alternative that allows the use of herbicide methods. Prescribed fire increases in alternative G to the benefit of those plant communities.

3 See response to comments in Letter No. 150, Comment No. 1. Eight alternatives are developed in response to issues and management needs. To provide clear distinctions between alternatives, several factors are varied, such as methods available, intensity of treatments, frequency of treatments, total acres treated, and acres treated by any specific method. Experience shows that "all or nothing" alternatives aren't very useful analytically, do not respond well to issues, and are technically infeasible. For example, your suggested 100% fire option would prohibit mid-story and release treatments. One possible consequence would be the loss of some T&E habitat. The theme of each alternative (chapter II, section B) greatly influences methods used and numbers of acres treated by each method. Please also see response to comments in Letter No. 279, Comment No. 1, and Letter No. 295, Comment No. 1 regarding IPM principles.

4 We do estimate how many acres will be treated by each method. This is a subregional document; individual ranger districts may vary tool use within the constraints of this document and the Forest Plan. However, average tool use over the subregion must not deviate substantially from our projections. Actual use of methods is strongly mitigated in chapter II, section E., pages II-35 to II-54 of the Draft EIS, and a system of monitoring is mandated to assure that mitigations are used and are effective.

Project implementation is discussed in new sections I-C and I-D on pages I-3 to I-5 of the Final EIS. NEPA procedures ensure that information is available to public officials and citizens before project level decisions are made or actions are taken.

In addition, the environmental acceptability of herbicide application and deep-disturbing mechanical methods depends on an extensive list of "mitigation measures," many of which would be extremely difficult to implement effectively and categorically. Therefore, those methods should be avoided because reasonable assurrance does not exist that those procedures can be followed.

5 (Also, "mitigation" in the dictionary means as you suggest, a moderation of impact, but common environmental usage is closer to "correction" of impact. For example, reducing the area of wetland impacted by an action is not generally considered to be mitigation, whereas reconstruction or restoration of the wetland generally is. I would prefer you call your policy guidelines for impact minimization something besides "mitigation.")

3. Impacts of chosen alternative on threatened community types and rare organisms

6 The EIS gives insufficient attention to the probable effect of the doubling of herbicide applications on threatened community types. Whereas fire generally will improve conditions for the perpetuation of most such communities, herbicides definitely do not. Your lists of affected organisms are based on species, but should also be based on community types. I strongly recommend more complete attention to threatened community types, and more explicit evaluation of impacts on them, not by different action mixes, but by different management actions individually. Clearly, extensive buffers around such areas are required, but until inventories are completed they cannot be accurately delineated.

7 Moreover, your lists of endangered and sensitive species are woefully inadequate, missing over twenty such species as best I can tell. The most glaring omission is the red-cockaded woodpecker, which is not listed for NC, but is present in the Croatan (Millis Road and elsewhere). Other sensitive animals not mentioned include black bear, Carolina gopher frog (NC Special Concern), Bachman's Sparrow (NC Threatened), and Henslow's Sparrow (NC Special Concern). Numbers of endangered or sensitive/threatened plants are omitted, including Calamovilfa brevipilis (NC Threatened), Asclepias pedicellata (NC Primary Proposed), Agalinis aphylla (NC Significantly Rare), Dionaea muscipula (NC Significantly Rare), Malaxis spicata (NC Significantly Rare), Ludwigia linifolia (NC Significantly Rare), Litsea aestivalis (NC Significantly Rare), Eleocharis robbinsii (NC Significantly Rare), and Polygonella articulata (NC Significantly Rare). I have also seen rough-leaved Lysimachia and Pinguicula primuliflora in the Croatan. I am sure there are others both in the Croatan and in the Uwharries. I strongly encourage complete surveys of potentially affected areas to find populations of other rare organisms. I understand that comprehensive inventories of Forest Service lands are currently underway in Arkansas. Contact Mr. Chuck Roe, NC Natural Heritage Program (919-733-7701) for more details.

(Continuation of Forest Service response)

5 Our use of the word "mitigation" adopts the concepts of avoidance and minimization of adverse effects described in 40 CFR 1508.20.

6 Alternative G does not increase herbicide use at all in habitat for threatened, endangered, proposed, and sensitive species, which includes the community types you mention. Mitigation number 2 (Draft EIS, pages II-36-37) requires the inventories you want, and mitigation measure numbers 2-8 (Draft EIS, pages II-48-50) protects the habitats (community types).

7 These lists have been updated in the Final EIS. Species identified in appendix E in the Final EIS reflect the correct status of threatened, endangered, and proposed species as designated by the U. S. Fish and Wildlife Service in the Federal Register which are known to occur on national forest lands in North Carolina. Species known to occur on national forest lands in North Carolina which are identified by the Forest Service as sensitive also are shown. As the National Forests in North Carolina update their list of sensitive species based on coordination with the State of North Carolina, this appendix will be updated.

8 I am also concerned about the proposed concentration of herbicide operations near corridors: many of the fire-adapted plants use such corridors as a refugium. Indeed, one of the best ways to find rare plants in the Croatan is to walk such open areas.

4. Effects of Herbicides on Estuarine Species

9 The effects of various herbicides on aquatic organisms remain poorly known, except for a restricted set of species. In North Carolina, the Croatan National Forest drains into the Neuse River and the White Oak River, both rich and productive nursery grounds for commercially important species of fish and invertebrates. Both of these areas are part of the joint federal/state Albemarle-Pamlico Estuarine Study region, where comprehensive evaluations of land-use decisions are currently underway. Any evaluation of the environmental effects of vegetation management must consider estuarine impacts more clearly, and should be integrated into APES. Copies of the draft EIS should be submitted to Mr. Ted Bisterfeld (EPA Region IV) and to Dr. Robert Holman (NRCD/APES Director) for evaluation by APES scientists.

SUMMARY

10 The draft EIS as presented is completely inadequate to demonstrate an acceptable role for increased pesticide use in forest management in the Southeastern Coastal Plain and Piedmont. No convincing evidence is presented that aerial application is acceptable under any circumstances, when other cost-effective and environmentally superior alternatives exist. Alternative G must be rejected. In addition, however, the alternatives presented do not cover the full range of options, but instead represent only variations from current practice. A complete restructuring of the EIS is recommended, along the lines of the companion document from the Pacific Northwest.

Thank you for this opportunity to comment on this important document.

Sincerely,

Douglas N. Rader, Ph.D.
Senior Scientist

cc. Mr. Ted Bisterfeld
Mr. Chuck Roe
Dr. Bob Holman

(Continuation of Forest Service response)

8 Many fire-adapted species find refuge in disturbed areas, with only minimal regard for the actual cause of the disturbance. Refugia identified along corridors have often been created and are maintained by mechanisms other than fire, including herbicides.

9 Section IV.G.1. on pages IV-85 to IV-88 of the Draft EIS has been revised to directly assess impacts on rivers, estuaries, and aquatic organisms.

10 See responses to comments 1 and 3 of this letter.

September 1988

Steve McCorquodale
Team Leader
Vegetation Management
EIS Team
USDA/FS
1720 Peachtree Road, N.W.
Atlanta, Georgia 30367

Dear Steve McCorquodale
and the EIS Team:

Thank you for allowing me a few grace days to compose this letter on the DEIS for Vegetation Management on the USDA Forest Service Southern Region. I appreciate the courtesy Gary Sick and Steve McCorquodale showed by extending the time for my comments. I have read both volumes of the DEIS. The emphasis upon herbicide use and mechanical treatments concerns me greatly. None of the proposed alternatives addresses my major concern:

that the National Forests and Grasslands be managed to preserve and maintain endemic plant communities.

I support the increased use of prescribed fire preferred Alternative G contains; however I reject the increased use of herbicides and

(2)

1 mechanical methods G advocates. A ninth alternative employing manual methods and prescribed fire while excluding mechanical methods and herbicides should be explored in depth. (I hesitate to exclude biological methods as my first pet in the world was a cow, a little Holstein heifer I named For Lorna after her mother Lorna. However, I must comment that introduced european ungulates no matter how beloved by me do not constitute an appropriate biological method of control. Cattle are introduced species who have displaced native herbivores. The biological method of control as described 2 in the DEIS constitutes an artificial intrusion. I contend that this category of control has not been adequately evaluated, as introduced ungulates do not impact a biotic system in the same way as native ungulates.)

I am deeply concerned that the DEIS fails to 3 distinguish between naturally occurring disturbance patterns and artificially imposed disturbance regimes. Not all disturbances are alike. The same disturbance in a different season can lead to different consequences. The comment on page xiii that Alternatives E and G

"achieve full recovery and pose low risks to population viability [of threatened and endangered

Response to Comments in Letter No. 340

From: Melynda Reid

Comment No.	Response
1	Alternative G does slightly increase the use of prescribed fire, but moderates its use by eliminating intense burns and expanding allowable seasons of application. Alternative G also expands numbers of acres treated with herbicides, but imposes stricter guidelines for their use. Use of mechanical methods, however, is significantly reduced from our current program (see table II-5 of the Draft EIS) and high intensity methods are prohibited. Manual and prescribed fire methods are strongly emphasized in alternative E, and effects of the suggested new alternative would not significantly vary from it. Please also see response to comments in Letter No. 82, Comment Nos. 4 and 5. As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.
2	Grazing has been a common, widespread, historic practice in the Coastal Plain since the 16th century when Spanish explorers brought cattle to Florida (Grelen 1978). It is a viable vegetation management tool and is therefore analyzed. Research exists that indicates domestic livestock can be managed to mimic the effects of large wild herbivores. Additionally, sufficient research exists to assess the impacts of cattle on Coastal Plain/Piedmont sites, and develop mitigation measures (page II-54 of the Draft EIS) that protect vegetation, soil, and water resources.
3	Each of the five methods of vegetation management analyzed produces disturbances to the environment. The section of the Draft EIS that you refer to (page xiii) is part of the general summary of the document; the detailed discussions provided in chapter IV of the Draft EIS specifically detail how each method affects the environmental elements addressed (vegetation, wildlife, T&E species, soil, water, air, etc). The discussions show that all disturbances are not alike. As you indicate, the significance of a particular disturbance is dependent upon specific site characteristics, the method of disturbance and its intensity, frequency of disturbance, and season. Tables D-1 through D-3 in appendix D of the Draft EIS display the potential effects of vegetation management disturbances on federally threatened, endangered, and proposed plant and animal species. In the Final EIS we have added tables that display the potential effects to species that the Forest Service considers as sensitive.

(3)

species] due to their balanced
mix of low to moderate
disturbance tools »
embodies this confusion. The biotic and abiotic forces which have shaped the flora of the Southern region over thousands of years vary greatly from the perturbations introduced by man. The disturbance patterns necessary for seedling recruitment and establishment of endemic floral communities differ markedly from the disturbance patterns the Vegetation Management plan outlines. In Tables A, B, C and D I address the effects of four types of disturbances on species of concern on the Apalachicola National Forest.

4 The DEIS employs a successional model of vegetation colonisation and migration which may not apply to all the forests and grasslands in the Southern region. Many sensitive plants occur in communities where Aristida stricta predominates. Studies of the reproduction biology of this grass indicate that this species declines markedly in response to mechanical and chemical intrustions. These observed phenomena suggest that communities where wire-grass grows may behave very differently from the model the Vegetation Management plan presupposes.

(Continuation of Forest Service response)

4 See Letter No. 167, Comment No. 19. The vegetation management Draft EIS displays the effects of the methods analyzed on various woody and herbaceous plant species. Site-specific analysis will determine the appropriate tool and its intensity to attain project objectives. The requirement for site-specific analysis can be found on pages II-35-37 of the Draft EIS. The Coastal Plain forests that have areas dominated by Aristida stricta will analyze appropriate tool use and intensity at the project level in order to maintain that species.

(4)

The DEIS adheres to a reductio ad absurdem view of the population dynamics of vegetation wherein all plant species in a selected site are assumed to respond alike and to evince similar recovery rates to perturbations introduced by man. This simplifying proposition has not been explicitly stated although it permeates the entire
5 Vegetation Management plan. I suggest the use of "miners' canaries" plant species whose adverse response to many different intrusions has been observed in many areas of the Southern region. These plant species would be designated MIS, Management Indicator Species, and all Forest Service plans and prescriptions would address their special requirements. I propose the following candidates for MIS:

Aristida stricta

This wiregrass exhibits an extreme sensitivity to mechanical disruptions and chemical intrusions. Seedling production is sporadic and depends upon timing of prescribed burn. A number of sensitive plants grow in association with Aristida stricta. In sites where this grass has declined markedly in number, many rare floral and faunal associates have been extirpated.

5 Most Forest Plans require monitoring of plant communities using the practice you suggest. They identify endangered or threatened plant species as Management Indicator Species. These species are usually good indicators of threatened plant communities. However, selection of Management Indicator Species is beyond the scope of this document.

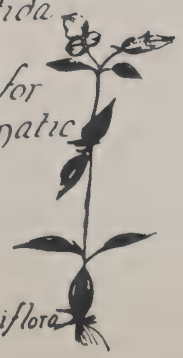
(5)

Cladium jamaicense

This sawgrass thrives in open and lightly canopied seeps and lands where the soil reacts adversely to compaction or mechanical disruption. This plant like Aristida stricta grows in association with other sensitive plants, species whose vegetative morphology and ephemeral bloom pattern may render them difficult to identify most of the year.

Cleistes divaricata

This rosebud orchid lives in many habitats from seepage slopes to flatwoods. I followed the distribution pattern of Cleistes divaricata to discover three new sites of the Federally endangered plant Harperocallis flava. All these new localities occurred in intact plant communities where Aristida stricta predominates visually. Many sensitive plant species for which identification is problematic thrive in sites where Cleistes divaricata grows.



Rhexia parviflora

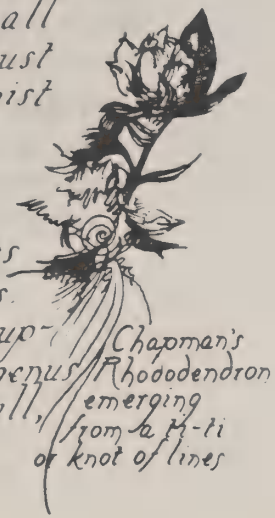
(6)

Pieris species

This lovely genus, resembling the garden cultivar Andromeda in bloom, prefers habitats which evince an extreme vulnerability to soil compaction or drainage alteration. Several sensitive species may be found growing near this genus, plants whose perennating organs may be destroyed by a peat fire or a prescribed burn during a drought where the soil surface is cracked or crazed. These same species, however, depend upon fires of low to moderate intensity to stimulate flowering and to repel invasion by forbs whose reproduction biology is not governed by fire. The presence of Pieris indicates a site where all activities in its watershed must be reviewed by a plant ecologist and hydrologist.

Rhododendron species

These wild relatives of azaleas grow in a variety of localities. Alterations in tree cover and upland drainage can render this genus vulnerable to drought, wind-kill, sun-scorch, and hard-freezes.



Chapman's Rhododendron emerging from a ti-ti or knot of lines

(7)

Sarracenia species

These pitcher plants march across the seeps and lands of the Southern region like hooded Saracens. In reality these are not invading hordes or colonising species, but rather very old individuals, remnants of ancient long established plant communities. Mechanical or chemical perturbations of the watersheds where this genus resides alter the compositional array of associated sensitive plant species greatly, often precipitating a decline in floristic diversity.

Taxodium ascendens

This pond cypress grows at the slow flowing end of wetlands, whether isolated or connected. The hydro-period of some sites it occupies favours the survival of obligate ephemeral pond breeders. This plant thus indicates the presence of a number of difficult to identify sensitive animal species, particularly rare amphibians. Many sensitive plants thrive at the edges of wetlands characterised by Taxodium ascendens. Fire lines

(8)

placed in these areas in Compartment 77 of the Apalachicola National Forest would extirpate Harperocallis flava from two of its known non-road side localities. All actions near and upland from Taxodium ascendens must be evaluated by a plant ecologist, hydrologist and a wildlife biologist.

Two of the species I have described above constitute keystone species, critical components of the biotic communities in which they occur. These two keystones are Aristida stricta and Taxodium ascendens. Wherever these two plants are displaced from a site, a catastrophic and irreversible decline in a number of sensitive flora and fauna, whether micro or macro, is initiated. The other four genera or species I have proposed as candidates for MIS represent excellent indices of sites where all Forest Service activities must be carefully evaluated and planned to maintain biotic diversity and watershed integrity. A majority of these plants can be identified vegetatively by a non-specialist for an extended period of time, facilitating site evaluation. All six candidates occur in

(9)

association with a variety of plants and animals listed as sensitive by the Regional Forester. Use of these plants as site descriptors would thus assist the identification of habitats possessing a «high potential for occupancy by a threatened, endangered, proposed or sensitive species». I request that the Forest Service develop a list of plant and soil indices at the Regional, State, and Ranger District levels to guide the identification and maintenance of sensitive plant and animal communities. My list represents a beginning, and I urge its adoption now.

The balance of my letter consists of Specific Comments on the DEIS plus enclosures I have decided to address the topic of emergent properties, processes occurring at the community level which impact plants at the species level, in a separate paper to Dr. Joan Walker, Plant Ecologist. In closing I express my gratitude for the opportunity to review the Vegetation Management plan. As an artist and writer I appreciate the difficulty drafting such a large document entails. I have written my comments with respect for all the effort you and your team have invested.

(10)

Thank you for your time.

Melynda Claire Reid
Melynda Claire Reid

Enclosures: Specific Comments
Tables A, B, C, D
Portfolio of Destruction,
version 2
Three poems from my
manuscript-in-progress
Correspondence
on native orchids



Rhexia parviflora

Copies (incomplete list):
Dr. E. Dennis Hardin
Florida Natural Areas Inventory
Judy Hancock
Florida Sierra Club
Sherlie Gade
American Orchid Society
Dr. Sharon Hermann
Tall Timbers
Dr. Joan Walker
USDA Forest Service
Don Bethancourt
USDA/FS
Hunter Wistrand
USDA/FS

SPECIFIC COMMENTS

Volume I

6 I-3 C. I ask that all changes to state plans resulting from adoption of any regional plan be subjected to the same public scrutiny and review process at the state level as the original state plans.

7 II-37 Present recovery plans and mitigation measures have not protected RCW colonies or Harperocallis flava from adverse habitat intrusions.

8 II-45 I support site specific burn planning with the stipulation that a plant ecologist, hydrologist, and wildlife biologist be consulted on all fire line placements. In Table C I demonstrate the vulnerability of 21 species of concern to improvised fire lines. Site specific analyses must be conducted to assure the protection of sensitive plant species.

9 II-44(9) I am opposed to allowing this exception. I refer you to version 2 of the enclosed Portfolio of Destruction for examples of the harm such intrusions wreak.

10 III-17 Table III-8
I urge the Forest Service to adhere to state regulations regarding sensitive plants wherever state policies provide greater legal

6 This comment regarding State plans is interpreted to mean individual forest plans. Changes to any forest plan are expected to be relatively minor and capable of being handled as amendments to the Plans. The Forest Service plans to incorporate these amendments into the Record of Decision which is the action forcing decision document prepared after completion of the EIS.

7 Vegetation management is just one factor which affects the status of any endangered species. Populations are subject to many adverse factors beyond the scope of this EIS which may result in decline. Mitigation measures in chapter II of the Draft EIS of this document are designed to supplement present mitigation measures. Site-specific analysis which must be done for all vegetation management projects, may identify additional measures.

8 See response to comments in Letter No. 320, Comment No. 4.

9 This mitigation measure remains in the Final EIS; however, we have clarified the text to explicitly state the exceptions. The use of plowed firelines in savannahs will be a rare, case-by-case exception. See mitigation measure number 10 on page II-53 of the Final EIS.

10 Sensitive species, species for which viability is in question, present some very special problems. In many cases the list of species protected by a State is very long and may include species that are not biologically at risk throughout their ranges. From a regional perspective we recognize the importance of designating sensitive species, but do not believe that automatic adoption of State lists provides a biologically sound solution to local plant or animal community problems. Specific recommendations for designating species as "sensitive" are made by each forest in consultation with local conservation agencies or natural heritage programs.

(6)

protection. In Florida native orchids are protected under state law; I ask that the Regional Forester list all orchids occurring in the Southern region as sensitive. I am including a copy of my correspondence with the American Orchid Society to underline my concern about the need for public land managers to steward orchids as national treasures. I will be drafting an informal note to Dr. Joan Walker, Plant Ecologist on criteria for listing plant species as sensitive.

Volume II

11 1-1 The statement of purpose neglects the conservation of sensitive plants and endemic plant communities. The Vegetation Management plan must evaluate in depth the crucial contributions of endemic vascular flora on maintaining fuel loading and nutrient and water cycling in the forests and grasslands and wetlands under its purview.

12 2-2 I oppose the use of herbicides in RCW stands to remove midstory and understory vegetation. I have observed young red-cockaded woodpeckers foraging in ilex shrubs. Section 8-24 mentions that aerial and ground mechanical applications of 2,4-D and 2,4-DP pose a serious threat

fallen petals of Rhexia parviflora

(Continuation of Forest Service response)

11 The "program descriptions" section presented on page 2-1 of appendix A is not an all inclusive listing of vegetation management activities. Last sentence in the second paragraph on page II-1 states "complete descriptions of the Forest Service vegetation management programs are in the environmental impact statement..."

The effect on plants is also discussed in the EIS proper, not appendix A. During the discussion of fuel loadings, nutrient budgets, and soil and water effects specific separation of endemic communities versus exotic or ruderal invasion was not done (chapter IV, sections F, H, and I). This document is regional in scope and specific concerns for community shifts or descriptions within specific ecosystems must be handled within the forest plans or in site-specific analyses.

12 The referenced statement on page 8-24 in the Draft Risk Assessment has been revised to accurately reflect the data presented in tables 8-1 and 8-2. It now reads: "Two herbicides that appear to present a significant potential for direct toxic effects when applied to the woodpeckers' foraging or nesting areas **at greater than typical application rates** [emphasis added] are 2,4-D and 2,4-DP." At typical application rates (required by mitigation measure number 4 on page II-48 of the Draft EIS) no risk in excess of EPA standard results from broadcast herbicide application within the foraging or nesting areas. All treatments in T&E habitat must be selective, many of which do not involve spraying at all. Selective herbicide use is recognized by the U. S. Fish and Wildlife Service as a valid tool for improving the habitat of the red-cockaded woodpecker by removing encroaching midstory and understory hardwoods. Concurrence by the FWS must be obtained before any habitat improvement project that "may affect" (including beneficial effects) any threatened or endangered species may commence.

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to Picoides borealis.

2-13 Mitigation measures as outlined in the DEIS will not protect threatened and endangered species from harm. In Table A I describe the consequences of five categories of herbicide deployment on 21 species of concern on the Apalachicola National Forest. I oppose all herbicide use in Florida. I request that public notice of intent to use herbicides, pesticides, fertilisers, paraquat

13 on the part of public agencies and utilities, whether federal, state, local, corporate or private, be made by mail to all parties on the Forest Service mailing list, and that all proposals be reviewed by a plant ecologist, hydrologist, and a wildlife biologist.

I am particularly concerned that the Regional Forester and State Forest Supervisors retain the authority to review and veto all proposals from DEA and the military to deploy paraquat and other chemicals on public lands.

14 4-25 The interaction of forestry herbicides with non-target species of plants is not described in any detail.

4-26 The LEACH Handbook is derived from studies of row crops and grains. The LEACH

13 Mitigation measure number 9 on page II-50 of the Draft EIS speaks directly to actions required to notify the public of proposed herbicide applications. Further mitigation will need to be discussed with the appropriate forest units.

14 In chapter II we discuss the effects of herbicides on broad classes of vegetation (woody plants, grasses, broadleaf weeds, etc.) Response of non-targets to treatment should be consistent with the response of the broad class in which they fall. There are specific examples (not given) of plants which do not respond as the broad class in which they fall. Thus johnson grass and many of the nut grasses are resistant to most of the herbicides labeled for grass control; kudzu, a broadleaf weed, is resistant to many of the herbicides registered for broadleaf weed control; oaks, dogwood and sourwood are resistant to many herbicides registered for the control of broadleaf-woody species; etc. Rather than propose a field guide to the use of herbicides we have stated that target selectivity and least environmental impact are to be considered when choosing herbicides for use (mitigation measure numbers 4-7, pages II-48 and II-49 of the Draft EIS.)

15 methodology cannot be assumed a priori to model the effects of herbicide uptake on Sarracenia species, terrestrial orchid species, or sensitive plant species.

16 6-4 I am concerned about the effects of increased water-soluble carbohydrate content on a number of forbs due to herbicides, as fruit-setting in some plants is governed by the carbohydrate cycle.

17 8-5 I am disappointed that the analyses of herbicides on vertebrate species fail to consider in depth the effects upon food availability to herbivores and insectivores of chemical perturbations introduced into foraging areas. Laboratory measures of acute dosage toxicity do not model the consequences of disrupted food supplies or displacement of preferred food sources or shelter sites on vertebrate species.

18 8-23 -25 I am appalled the Vegetation Management plan selected no plant species for extended analysis. This omission implies that the Forest Service manages vegetation negatively, that the positive values intact plant communities represent are subordinated to market values wherein trees are all.

19 B-5 I am concerned that the decline of endemic fire-adapted forbs initiated by silvicultural

15 The LEACH methodology discussed in chapter IV of the Risk Assessment was indeed developed using data from an agricultural setting. However, it does not deal with uptake by plants. LEACH is used in the Risk Assessment to model downward leaching of a herbicide in soil. This was done to evaluate the risk of contaminating an aquifer. Comments as to effects of herbicides on plants are found in chapters II, page II-22 to II-34 and chapter IV, pages IV-41 to IV-44 of the Draft EIS.

16 Irvine et al. (1977) report the effect of 2,4-D on pallatability of a ragweed species, speculating that it increases soluble carbohydrate content in the ragweed being studied. Extrapolation of this 2,4-D data to "forbs" may be acceptable in the broad sense, if by "forbs" is meant broadleaf, herbaceous plants.

However, extension of the 2,4-D/ragweed interaction to all herbicides is scientifically unjustified. The mode of action--auxin like--of 2,4-D is dissimilar to the other 10 herbicides evaluated. While dicamba, triclopyr, and picloram are also reported to disrupt growth processes, none are reported as behavioral analogs of 2,4-D. The generatized fruit setting interference due to water soluble carbohydrate imbalance following herbicide application does not occur as suggested and 2,4-D use is heavily mitigated in chapter II, mitigation measure number 6 on page II-49 of the Draft EIS.

17 The Risk Assessment (appendix A) contains analyses of herbicides and additives as they affect human and wildlife health. Discussion of direct effects on plants and secondary effects (such as alteration of food availability) on vertebrates' habitat is inappropriate in the Risk Assessment. It is disclosed in chapter IV of the EIS where indirect effects of herbicides are discussed (pages IV-59-62 of the Draft EIS). The latter section is clarified in the Final EIS.

18 See previous response.

19 Research by Wells and others (1979), cited and discussed on page B-5, disclose relationships between plant and other ground cover and soil structure.

practices will adversely affect soil response to hot wildfires. The interaction of vegetative cover with fire under different fuel loading and seasonal regimes as it impacts soil structure has not been adequately explored. (E)

B-11 The response of legumes to season of burn has not been evaluated on the Apalachicola
20 National Forest. A number of winter-blooming legumes have not been classified taxonomically.

B-16 I request that For-plan be revised to include characterisations of understory vegetation.
21 Such inventories are critical to guide accurate assessments of the predicted and the actual effects of fire on soil erosion and runoff.

B-22 I suggest that all Forest Service plans and prescriptions include predictions of the paths
22 and likelihood of probable catastrophic fires at both the Compartment and the Ranger District levels. Sites where soil structure and plant cover cannot withstand compaction or mechanical disruption from machinery should be designated areas to let burn and should be marked as such on maps and on site. Areas where wildfire has intruded should be evaluated by a plant ecologist before timber salvage is undertaken or site preparation for reforestation is planned.

20 We agree. Such research is lacking in many southern landtypes. We used available research to develop the EIS. We have identified further research needs in EIS section IV-O.

21 FORPLAN is the linear program model used in forest planning. Modifications of the model are beyond the scope of this EIS.

22 Not only are site-specific analyses required before projects are implemented (see general mitigation measure number 1, page II-35 of the Draft EIS), but there are also 14 mitigation measures relating to the use of prescribed fire which are required (pages II-43 through II-46 of the Draft EIS). Together, these requirements afford much of the protection requested by the commenter. Preplanning for natural catastrophic fire is beyond the scope of this EIS. See also discussion under "buffer stands" in response to comments in Letter No. 321. See also response to comments in Letter No. 320, Comment No. 4.

D

A number of critical botanical sites have been converted to pine plantations in the wake of a too hot fire, reducing biotic diversity and losing forever the opportunity to assess over time the effects of hot fire on endemic plant communities.

C-1 The effect of forestry herbicides on non-target plants on the sensitive plant list has not been elucidated.

23

C-8 Stand productivity cannot be restricted to silvicultural guidelines. Other non-market values, aesthetics, wildlife forage, endemic forb cover, should be included in evaluating a stand. I suggest that all stands be assessed and inventoried by a plant ecologist and a wildlife biologist prior to any activity.

24

C-10 No! No! No! The conclusion here that herbicide use does not adversely affect soil and site productivity ignores non-market values. Here I must quote from the poet William Blake:

> "Some scarce see Nature
> at all, but to the Eyes of
> the Man of Imagination,
> Nature is Imagination itself." BLAKE

25

I refer you to several poems I have written on NEB on the Apalachicola National Forest. These plants I love would be extirpated from the forest by herbicide deploy -

(Continuation of Forest Service response)

23 See response to comment 14 of this letter.

24 Stand productivity in appendix C, page C-8, was intended to refer specifically to crop tree growth. However, the non-market values you mention are essential components and are included in site-specific evalutions of any vegetation management activity.

25 Properly applied, herbicides cause a temporary shift in the vegetation on-site. Recolonization from surrounding areas normally reestablishes all but sensitives, threatened or endangered species. Recognizing these special cases strong mitigations have been added to help to protect threatened, endangered and sensitive species and their habitats. See the flow chart added to appendix D in the final EIS which describes the decision process in a project proposal with respect to threatened, endangered, proposed, and sensitive species.

(9)

ment. The loss to Imagination would be incalculable.

D-3 I approve of site specific analyses with the stipulation that a PhD Plant Ecologist be hired for each state, and that all site analyses describe the understory and midstory vegetation in sufficient depth to permit an accurate EA of proposed activities. Determining whether a site possesses a "high potential for occupancy by a threatened, endangered, proposed, or sensitive species" is a highly problematic skill, entailing the knowledge base and field experience of several disciplines, particularly plant ecology, botany, and wildlife biology.

26

D-5 The use of herbicides "to improve habitat for the red-cockaded woodpecker, gopher tortoise, and sand skink" is, in my opinion, an act of unwarranted hubris. The gopher tortoise is a keystone species in the sites it occupies, providing shelter for over fifty species of vertebrates. Any EA for herbicide use to improve gopher tortoise habitat must entail an accurate inventory of these associated species and their preferred food sources.

27

D-7 Fire lines improvised by equipment operators in both prescribed burns and wild fires have adversely impacted Harperocallis flava and

26 Project planning is a process that involves a variety of disciplines. Based on the characteristics of a site, the appropriate level of expertise will be sought during site-specific analysis. Depending upon the type of project, or treatment proposed, this may or may not always require the expertise of a plant ecologist. For example, some projects may require expertise of a soil scientist, hydrologist, or an archaeologist. Wildlife biologists are routinely involved in the interdisciplinary silvicultural prescription and subsequent work planning processes. Additionally, plant ecologists are being sought for other national forests in the Southern Region.

27 Selective herbicide use is recognized by the U. S. Fish and Wildlife Service as a valid tool for improving the habitat of the red-cockaded woodpecker by removing encroaching midstory and understory hardwoods. Consultation is currently underway with FWS concerning herbicide use for improvement of gopher tortoise habitat. Concurrence by the FWS must be obtained before starting any habitat improvement project that "may affect" (including beneficial effects) any threatened or endangered species.

(B)

officially designated Special Interest Areas and Research Natural Areas. I refer you to Table C and version 2 of the Portfolio of Destruction for an extended discussion of fire lines. The assumption that maintaining a sixty foot buffer from any sensitive plant would mitigate the effects of an herbicide neglects a number of phenomena which emerge at the community level. I have mentioned some of these emergent properties in the letter section on MIS. The concept here is simple: the whole is greater than the sum of its parts.

28

ADDENDUM

Volume I

IV-81 I vehemently disagree with the contention expressed here that the effects of soil compaction are mitigated by disking and bedding. Not so! Disking and bedding constitute catastrophic intrusions into the structure of endemic plant communities. Where these mechanical perturbations occur soil temperature, nutrient stratification, water cycle, and soil micro-flora and fauna are altered. I ask that this section on mechanical methods be evaluated and rewritten by a plant ecologist and a mycologist.

29

28 The 60-foot buffer strip is consistent with standards established by the EPA (in consultation with the FWS) for use of certain herbicides near certain endangered species. More stringent standards may be required if site-specific analysis so indicates.

29 Disking and bedding as discussed on page IV-81 of the Draft EIS are measures to restore disturbed (compacted) soils to more normal bulk density and aeration regimes. The structure of the plant communities on these compacted soils is unlikely to correspond to undisturbed endemic populations. The changes you mention do occur - however, the resulting site conditions will be significantly more "natural" than prior to the treatment. The Ph.D. mycologist on our full-time team, while recognizing the severity of the intrusion, favors the treatment to counteract the far greater long-term negative impacts of soil compaction. Short-term disruption of soil myco- and microflora will occur. However, at almost any time of the year encystment and stress induced sporulation will lead to rapid and effective recolonization of the site. Timing is more important for vascular plants - however, properly timed intervention will improve the likelihood that true endemic communities may recolonize these sites.

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State of Louisiana

Virginia Van Sickle
SECRETARY
(504) 925-3917

DEPARTMENT OF WILDLIFE AND FISHERIES
POST OFFICE BOX 98000
BATON ROUGE, LA 70898

Buddy Roemer
GOVERNOR

23 August 1988

John E. Alcock, Regional Forester
USDA Forest Service
1720 Peachtree Rd., N.W.
Atlanta, GA 30367

Dear Mr. Alcock:

The following paragraphs address several points contained in the draft EIS for Vegetation Management in the Coastal Plain/Piedmont. I realize that these comments may be received after the 25 August deadline; however, I hope you will consider them when developing the final EIS.

1 The National Environmental Policy Act (NEPA) requires that a reasonable range of alternatives be evaluated and compared to the preferred alternative; however, the draft EIS for Vegetation Management in the Coastal Plain/Piedmont does not meet this requirement. The majority of respondents to the initial request for issues that should be addressed in the draft EIS preferred prescribed fire over other methods of vegetation management. Many respondents also viewed the combination of herbicides and mechanical treatment as very undesirable, and considered herbicides a potential threat to human health and wildlife species. No alternative that combined extensive use of prescribed fire and minimal application of mechanical and herbicidal site treatment was provided. We would like to have seen additional alternatives that fully addressed the range of fire management options, including intensity, frequency, and season, while limiting or eliminating the use of mechanical preparation and herbicide application.

The Louisiana Department of Wildlife and Fisheries supports the use of prescribed burning as the primary method of vegetation management in pine forests. Fire is a natural process that is estimated to have occurred every 3-5 years in the Coastal Plain, unfortunately the acreage treated by controlled burning annually falls far short of that historically affected by natural wildfires. Many fire-dependent plant species and communities will undoubtedly be adversely affected if vegetation management on national forest land in the Southeast stresses herbicide application and mechanical site preparation over an increased use of prescribed burning.

2 All of the herbicides listed are known to be harmful to proposed, endangered, threatened and national forest sensitive (PETS) plant species, and some are known to be harmful to PETS animal species. Mechanical site preparation is potentially harmful to animal and plant species and significantly increases the potential for channel erosion. Additionally, biological vegetation control (i.e., livestock grazing) can cause serious damage to wetland and riparian systems. Thus, in addition to being economical (less than one-tenth the cost of herbicide, mechanical, or hand control), fire provides a vegetation management tool that minimizes the adverse effects on natural communities and PETS, preserves vegetative diversity (i.e., species richness), and minimizes environmental damage.

An Equal Opportunity Employer

Response to Comments in Letter No. 342

From: Virginia Van Sickle

Comment No.	Response
1	Your proposed "new" alternative which emphasizes fire while deemphasizing mechanical and herbicides is a minor variation on E, which significantly reduces the use of herbicides and mechanical and places restrictions on their use not existing in the current program (alternative F) (see table II-5 of the Draft EIS). The favorable public response about the use of fire is captured in every alternative except A (over 80% of all treatments in all other alternatives are prescribed fire) (see table II-6 of the Draft EIS). In fact, alternative E treats slightly more acres with prescribed fire than alternative G. See response to comments in Letter No. 320, Comment No. 1; Letter No. 150, Comment No. 1; Letter No. 82, Comment Nos. 4 and 5; Letter No. 298, Comment No. 1; and Letter No. 124, Comment No. 5.
2	Risk of increased channel erosion from mechanical site preparation is serious only with raking and heavy disking, which are allowed only in alternatives F and H (pages II-7,10 of the Draft EIS). Heavy grazing can cause serious damage to wetlands and riparian ecosystems, but grazing is excluded from wetlands.

3 Because PETS may be extremely sensitive to vegetation management methods, mitigation measures are essential for protecting those species. However, the harmful effects of the preferred alternative to PETS cannot be properly determined and mitigated given the present level of information; the majority of Forest Service land has not been thoroughly inventoried for rare species or significant natural communities. In addition, although the draft EIS states that a site evaluation will be made prior to vegetation management, many national forests do not have the personnel trained to recognize PETS (especially plants) known to occur or to potentially occur on a particular forest. Although some information is provided by Natural Heritage Programs, state wildlife agencies, and other biologists, more information is needed to prevent the unknowing eradication of a rare species from a site. This places the burden of protecting PETS largely on Natural Heritage Program biologists and other endangered species biologists. Thus, despite the statement in the draft EIS that "normal succession resumes within one to three years of last application of herbicide" (page IV-44), increased herbicide use, especially aerial application, could result in the irreversible loss of PETS plant species (because of their inherent limited dispersal and recolonization potential) for which the Forest Service is mandated to protect.

4 NEPA requires that an EIS must fully disclose the environmental effects of the proposed action, including connected and cumulative actions on neighboring lands. This draft EIS does not consider the cumulative effects of the preferred alternative with management policies of adjacent lands. Management practices such as large clear cuts, mechanical site preparation, aerial herbicide application, and conversion of naturally diverse forests to loblolly pine plantations are common (e.g., Kisatchie National Forest). In many cases, national forest land may provide the only suitable habitat for PETS in the region.

The above statements should not imply that the Louisiana Department of Wildlife and Fisheries supports a ban on the use of herbicides or mechanical site preparation. Herbicides can provide an important tool in the management of habitat for PETS and maintenance of rights-of-way. Herbicide use should be limited to achieve selective
5 control and reduce the risks to non-target species.

In general, all vegetation management plans should be approached cautiously and the most environmentally acceptable methods given top priority. Additionally, an adequate inventory of the proposed site should be conducted prior to treatment to insure that the negative effects of the management plan on PETS are minimized.

Thank you for the opportunity to comment on the draft EIS.

Sincerely,

Virginia Van Sickle

Virginia Van Sickle,
Secretary

VVS:LNHP:rpm

cc: Bob Misso
Johnnie Tarver
Butch Bateman
Kenny Ribbeck
LNHP

(Continuation of Forest Service response)

3 We agree that threatened, endangered, proposed, and sensitive species may be sensitive to vegetation management. However, we feel that the effects on these species have been adequately evaluated and mitigated in chapter IV, section E, pages IV-69 to IV-72 of the Draft EIS; appendix F of the Draft EIS (Biological Evaluation of the Effects of the Preferred Alternative on Threatened, Endangered, Proposed, and Sensitive Species); and in mitigation measure 1 and 2 on pages II-35 and II-36, and numbes 4, 5, 6, and 8 on pages II-48 through II-50 of the Draft EIS. Also, in order to prevent unknowing impacts on these species, regardless of the method or tool proposed for use, mitigation measure number 2 on page II-36 of the Draft EIS specifically states that when adequate population inventory information is unavailable, it will be collected when the affected site has a high potential for occupancy by a threatened, endangered, proposed, or sensitive species. Figure D-1 of the Final EIS traces the process required to insure adequate assessment of potential harmful effects. Additionally, although all Forest Service personnel are not trained as botanists or biologists capable of recognizing threatened, endangered, proposed, and sensitive species, they are trained to seek help from appropriate sources such as Forest Service specialists and State Heritage personnel; and on-the-ground plant identification training sessions are conducted through the Regional Botanist. See also response to comments in Letter No. 124, Comment No. 12.

4 The EIS does assess cumulative effects on water and aquatic life from all lands in various typical watersheds (pages IV-91-95 of the Draft EIS). Although cumulative effects on terrestrial threatened, endangered, proposed, and sensitive species are not directly analyzed, alterntives C through H provide for recovery of known species (table II-8 of the Draft EIS).

5 Prior to any vegetation management treatment, projects will undergo site-specific analysis (mitigation measure number 1 on page II-35 of the Draft EIS) which determines appropriate methods and tools, intensity and selectivity of applications, and the potential environmental effects of the methods considered based on project objectives, species requirements, and site characteristics. This includes the examination and evaluation of a reasonable range of alternative methods, including the use of methods which do not involve herbicides.

As a result of comments by the public and management, the Draft EIS preferred alternative G has been modified to have less herbicide use. Modified G reduces the overall amount of projected herbicide use, reduces the projected use of aerial application, and increases the amount of selective over broadcast application techniques proposed in alternative G. For comparison purposes, modified G is described in detail and displayed on pages II-15 to II-17, and in tables II-3 through II-9 of the Final EIS; its actions and effects fall within the range of those disclosed for the other alternatives in the Draft EIS.

(Continuation of Power Service Sections)

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